

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1729.—Vol. XXXVIII.

LONDON, SATURDAY, OCTOBER 10, 1868.

{STAMPED .. SIXPENCE,
UNSTAMPED .. FIVEPENCE

M. R. JAMES CROFTS, STOCK AND SHAREBROKER,
No. 1, FINCH LANE, CORNHILL.
(Established 1842.)

HOLDERS of mining shares difficult of sale in the open market may find purchasers for the same through Mr. CROFTS' agency. Also parties requiring advice how to act in the disposal of or abandonment of doubtful mining stocks may profitably avail of Mr. CROFTS' long experience on the market in all cases of doubt or difficulty, legal or otherwise.

It is difficult to say what values are at the cheapest prices; but it appears that CHIVERTON, if to be had at 42s. 6d., are cheap; other dividend mines are EAST WHEAL LOVELL, very good stock, at 42s. 6d.; Herodfoot are quoted at 42s. 6d., at which price, if to be had, they should be bought. The PRINCE OF WALES puzzles everyone; they are now 38s. to 39s., and not likely to go lower. SUMMER HILL are neglected, but they will have a favourable turn before long; at present they are about 24. WEST CHIVERTON are 23s. and buyers at this price. WEST GODOLPHIN are about 20s.; buyers of these shares should not neglect them, as they are pretty sure to come to a good market by-and-by. WHEAL BASSET are about 40s., and well worth buying at the price, if they can be obtained. WHEAL MARY ANN are about 41s. 6d. to 42s.; and WHEAL SETON have fallen from 42s. 6d. to 41s.; buyers should not neglect them, if they can be had at the lowest price. WHEAL KITTY (St. Agnes) are 42s. 6d.; these shares are in a healthy condition, and well worth the price asked for them.

M. R. JOHN BUMPUS, 44, THREADNEEDLE STREET,
has FOR SALE the following shares, free of commission:—
25 Australian United 25 E. Grenville, 43s 9d 50 Prince of Wales, 39s.
(Gold), 17s. 75 Frontino, 13s. 9d. 20 Princess of Wales, 5s 6
35 Anglo-Brazil, 11s. 3d. 20 Port Phillip, 30s. 15 Prosper United, 11s 9
50 Carn Camborne, 11s. 10 Great Vor, 41s. 10 St. John del Rey, 41s. 10
20 Chiverton, 42s. 6d. 10 Great Laxey, 41s. 10 South Caradon, 43s. 10
25 Chontales, 42s. 6d. 30 Tincroft, 41s. 10 West Caradon, 41s 9d
20 Clifford, 21s. 6d. 20 Gt. No. Laxey, 15s. 15 Kitty (St. Agnes), 43s. 10
50 Drake Walls, 8s. 9d. 20 Gawton United, 25s. 5 West Tolgus, 44s. 10
30 Don Pedro, 43s. 7s. 6d. 3 Herodfoot, 41s. 10 25 W. Pr. of Wales, 8s 9d
50 E. Carn Brea, 7s. 9d. 30 West Chiverton, 41s. 10 5 West Chiv., 41s. 10
15 East Caradon, 43s 9 5 Mary Ann, 41s. 10 50 W. Drake Walls, 8s 3d
East Botolph Hill (offer 25 No. Wh. Laxey, 28s. 20 West Great Work, 35s
wanted). 50 N. Treskerby, 8s. 10 W. Caradon, 41s 9d
20 East Lovell, 46s. 25 New W. Lovell, 17s 6d. 20 Yudanmuta, 42s 6d
BUYER of Carn Camborne, Marke Valley, and West Rose Down shares at highest market prices.

M. R. WILLIAM WARD
STOCK AND SHAREDEALER,
No. 29, THREADNEEDLE STREET, LONDON, E.C.

M. R. G. D. SANDY, STOCK AND SHAREDEALER,
No. 48, THREADNEEDLE STREET, LONDON, E.C.
TAMAR VALLEY.—My advice is, buy these shares. Full particulars on application.

MESSRS. WILSON, WARD, AND CO.,
STOCK AND SHAREDEALERS,
16, UNION COURT, OLD BROAD STREET, LONDON, E.C.
BUYERS of New Great Consols shares.

JOHN RISLEY, (SWORN) STOCK AND SHAREBROKER,
48, THREADNEEDLE STREET, LONDON, E.C.
Business transacted in the British Funds, Railway and other Stocks, Foreign Bonds, &c., on the usual commission, 1½ per cent. on mining and other shares, above 42s; and at 2s and under 6d. per share.
EAST WHEAL GRENVILLE MINE is likely to prove a great prize. Shareholders are recommended to hold on their shares, which are in demand at 42 15s.
Bankers: London and Westminster, Lothbury.

M. R. JAMES HUME, STOCK AND SHAREDEALER,
74, OLD BROAD STREET, LONDON, AND MINING EXCHANGE.
Closing prices:—
Chiverton 42 1/2 to 43 1/2 Drake Walls 9s to 11s
Chiverton Moor 38 1/2 to 39 1/2 South Condurrow 2 1/2 to 3 1/2
Prince of Wales 38s 1/2 to 39s 1/2 Wheal Uny 2 1/2 to 3 1/2
Wheal Mary Florence 38s 1/2 to 39s 1/2 Don Pedro (prem.) 2 1/2 to 3 1/2
East Grenville 3 1/2 to 4 1/2 West Chiverton 41s 1/2 to 42s 1/2
East Grenville 3 1/2 to 4 1/2 West Caradon 41s 1/2 to 42s 1/2
Mr. HUME can recommend shares which are certain to rise 200 to 300 per cent.
Mr. H. sends a daily list of stocks and shares to subscribers.
WHEAL MARY FLORENCE.—Full particulars of this rising mine on application to Mr. HUME. Every description of share negotiated.
Bankers: The London Joint-Stock Bank.

BARTLETT AND CHAPMAN, STOCK AND SHAREDEALERS,
2, BUCKLESBURY, LONDON, E.C.
ROYALTON shares are good to purchase at present price. The report from the mine is highly satisfactory.

BARTLETT AND CHAPMAN'S "INVESTMENT CIRCULAR AND FINANCIAL RECORD" for September is now ready, and contains a resume of the Financial Business of the months of July and August, Meetings of Dividend and Progressive Mines, Bank Returns, Interesting Articles on Lovell Consols, Great South Chiverton Mines, and the Recent Gold Discoveries in Queensland and South Africa.
Post free on application.
2, Bucklebury, London, E.C.

MESSRS. WARD AND JACKMAN,
STOCK AND SHAREDEALERS,
No. 1, CUSHION COURT, OLD BROAD STREET, CITY, E.C.
Members of the Exchange.
Closing prices, Friday Evening, Oct. 9.
Bedford United 1 1/2 to 2 1/2 South Condurrow 2 1/2 to 3 1/2
Carn Brea 1 1/2 to 2 1/2 South Herodfoot 1 1/2 to 2 1/2
Chontales 1 1/2 to 2 1/2 St. John del Rey 1 1/2 to 2 1/2
Chiverton 1 1/2 to 2 1/2 Tincroft 1 1/2 to 2 1/2
Chiverton Moor 1 1/2 to 2 1/2 West Chiverton 1 1/2 to 2 1/2
Cook's Kitchen 1 1/2 to 2 1/2 West Caradon 1 1/2 to 2 1/2
Don Pedro (prem.) 2 1/2 to 3 1/2 West Drake Walls 7s 6d to 8s 6d
East Caradon 3 1/2 to 4 1/2 West Great Work 2 1/2 to 3 1/2
East Grenville 3 1/2 to 4 1/2 West Wh. Frances 2 1/2 to 3 1/2
East Lovell 3 1/2 to 4 1/2 West West Seton 1 1/2 to 2 1/2
Frank Mills 2 1/2 to 3 1/2 Wheal Agr 1 1/2 to 2 1/2
Great Laxey (ex div.) 1 1/2 to 2 1/2 Wheal Butler 1 1/2 to 2 1/2
Great Retallack 2 1/2 to 3 1/2 Wheal Crebor 3 1/2 to 4 1/2
Great Wheal Vor 1 1/2 to 2 1/2 Wh. Emily Henrietta 2 1/2 to 3 1/2
Herodfoot 40s to 42s Wheal Grenville 24s to 26s
Marke Valley 7 1/2 to 8s Wheal Mary Ann 16 1/2 to 17 1/2
North Roskear 11s to 12s Wheal Seton 47 1/2 to 49s
Prince of Wales 37s to 38s Wheal Uny 47 1/2 to 49s
Providence (ex div.) 23s to 24s Yudanmuta 2 1/2 to 3 1/2
Messrs. WARD and JACKMAN are DEALERS in all the above at the close market prices of the day.
Messrs. WARD and JACKMAN will forward a correct list of closing prices and statistical information GRATUITOUSLY on application.
Messrs. WARD and JACKMAN have SPECIAL BUSINESS in Brynpostig Mine, at 2s per share net.
Oct. 9. Bankers: London and Westminster, Lothbury.

M. R. WILLIAM MARLBOROUGH, 1, GREAT ST. HELEN'S,
BISHOPSGATE STREET, LONDON, E.C. (Established 14 years), has FOR SALE the FOLLOWING SHARES, at net prices:—
50 Anglo-Brazil, 10s 9d 20 Gt. Retallack, 42s. 20 W. Great Work, 30s.
40 Bedford Con., 12s. 6d. 3 Great Wh. Vor, 41s. 10 3 West Frances, 42s. 6d.
25 Calbeck Fells, 11s. 3d. 10 Marke Valley, 47 1/2 1 West Seton, 41s. 10
30 Chiverton, 32s. 6d. 5 No. Roskear, 41s 8s 9 20 Wheal Agr, 22s. 6d.
20 Chontales, 42s. 8s. 9d. 40 Prince of Wales, 39s. 20 Wheal Crebor, 8s.
10 Chiverton Moor, 46s. 6d. 50 Pestarena, 31s. 3d. 30 Wh. Grenville, 26s 6d
20 Don Pedro, 42s. 9s. pm. 20 So. Condurrow, 11s 3d. 1 Wh. Mary Ann, 41s.
50 Drake Walls, 10s. 6d. 20 So. Herodfoot, 19s 6d. 1 Wheal Seton, 42s. 6d.
20 East Caradon, 42s. 6d. 5 St. John del Rey, 41s 10 20 Wheal Uny, 48s.
40 East Grenville, 42s 8s 9 50 Tamar Valley, 10s. 6d. 3 Wheal Butler, 48s.
20 Frank Mills, 42s. 6d. 1 Wt. Chiverton, 46 1/2 50 Worthing, 10s.
50 Frontino, 14s. 6d. 30 West Caradon, 35s. 30 Yudanmuta, 42s. 6d.

M. R. GEORGE BUDGE, STOCK AND SHAREDEALER,
No. 4, ROYAL EXCHANGE BUILDINGS, LONDON, E.C. (Established 20 years), is a SELLER of the following shares at net prices:—70 Crebor, 8s.
20 Chiverton, 41 1/2s. 6d.; 50 Great South Chiverton; 30 North Treskerby, 7s. 9d.;
20 Gwydyr Park, 4s. 6d.; 25 Prince of Wales, 39s.; 40 Drake Walls, 10s.; 30 Calbeck Fells, 10s. 6d.; 150 West St. Ives; 2 West Chiverton, 46 1/2s.; 30 Wheal Grenville, 26s. 6d.; 50 East Grenville; 20 South Herodfoot, 23s. 3d.; 50 North Pool; 100 South Grenville, 7s. 6d.; 30 Tamar Valley; 2 Minera, 41s. 10s.; 5 Maes-y-Safn, 42s.; 100 Lovell Consols; 30 South Condurrow, 8s. 9d.; 40 East Rosewarne, 7s. 6d.; 40 East Chiverton; 100 Redmoor; 10 North Retallack, 42s.; 110 West Tremayne, 6s. 6d.; 70 Anglo-Brazilian, 10s.
SPECIAL BUSINESS in Royalton, Minera, West St. Ives.

CALDBECK FELS CONSOLIDATED LEAD AND COPPER MINING COMPANY (LIMITED).—Full particulars respecting this property will be found in PETER WATSON'S "WEEKLY MINING CIRCULAR AND SHARE LIST" of yesterday (Friday, Oct. 9, 1868), No. 500, Vol. X. Price 6d. each copy; forwarded on application.

CORNISH AND DEVON MINES.—
FOREIGN MINES.

PETER WATSON'S "WEEKLY MINING CIRCULAR AND SHARE LIST"—SYNOPSIS OF CORNISH AND DEVON MINES," of Friday, Oct. 9, No. 500, Vol. X., price 6d. each copy, forwarded on application, contains information on the following mines:—
West Great Work. Great Wheal Vor. Calbeck Fells.
South Great Work. West Chiverton. Yudanmuta.
East Grenville. Carn Camborne. Don Pedro.
Wheal Chiverton. West Caradon. Anglo-Brazilian.
West Drake Walls. Prince of Wales. Australian United.
Drake Walls. Providence. Rossa Grande.
Frank Mills. Wheal Uny.

INVESTMENT OR SPECULATION.—A SELECTED LIST OF RAILWAYS, BANKS, MINES, COLONIAL SECURITIES, FOREIGN GOVERNMENT BONDS, &c., forwarded to bona fide investors on application, in addition to the high rate of interest many of the above are paying, there is now every probability of a great rise in market value.

PETER WATSON, STOCK AND SHAREDEALER,
79, OLD BROAD STREET, LONDON
(three doors only from Hercules-passage, entrance to the Stock Exchange).
Twenty-three years' experience.
(Two in Cornwall and Twenty-one in London.)
Bankers: The Alliance Bank, and the Union Bank of London.
References given and required (when necessary) in all the principal towns of the United Kingdom.

THE LONDON DAILY RECORD—STOCK AND SHARE LIST—STOCK EXCHANGE SECURITIES. Published every evening at 5 o'clock. It contains the latest prices of railways, banks, mines, foreign stocks and bonds, financial, insurance, and miscellaneous shares, remarks on the daily rise and fall in prices, with advice as to purchase and sales. Annual subscription, £1 1s.; by post, £2 5s.; monthly subscription—by post, 4s.; single copy, 1d.; by post, 2d.
PETER WATSON, Stock and Sharedealer, 79, Old Broad-street, London.

M. R. EDWARD COOKE,
FOREIGN AND BRITISH STOCK AND SHAREDEALER,
76, OLD BROAD STREET, LONDON, E.C.
Deals in all kinds of Foreign Stocks, and the shares of the various Gold Mines, also in the best Dividend and Progressive Mines.
A Price List forwarded free on application.
Bankers: Alliance Bank.

M. R. W. H. CUEL,
No. 42, CORNHILL, LONDON, E.C.
WALTER TREGELLAS, 122, BISHOPSGATE STREET
WITHIN, LONDON, E.C., DEALS in ALL STOCKS AND SHARES, either for cash or for the fortnightly settlement.
SPECIAL BUSINESS in the following Gold Mines:—
Don Pedro. General Brazilian.
Tamar Valley. Frontino and Bolivia.
Rossa Grande. Bankers: The Alliance Bank.

M. R. WILLIAM SEWARD, STOCK AND MINING SHARE BROKER,
19, THROGMORTON STREET, LONDON, E.C.
Every description of shares BOUGHT and SOLD at the best market prices.

M. R. JOHN MOSS, STOCK AND SHAREDEALER,
70, OLD BROAD STREET, LONDON, E.C.
Has BUSINESS as BUYER or SELLER in all British and Foreign Mines.
SPECIAL BUSINESS in Calbeck Fells, Chiverton, Chontales, Frontino, North Treskerby, Prince of Wales, and Rossa Grande.
Bankers: City Bank, Finch-lane, E.C.

M. R. C. A. POWELL, SHAREDEALER, 78, OLD BROAD STREET, LONDON, E.C.
Transacts BUSINESS as BUYER or SELLER in the various shares currently dealt in at net prices.
Parties dealt with at a fair margin on the market price.
SPECIAL BUSINESS in Calbeck Fells, Chiverton, Frontino, Prince of Wales, and North Treskerby.
Bankers: City Bank, Finch-lane.

MATTHEW GREENE, STOCK AND SHAREDEALER,
1, ST. MICHAEL'S HOUSE, CORNHILL, LONDON, E.C.
TAMAR VALLEY.—The engine, as proposed, is considered, and works admirably. These shares will soon see a great rise. SPECIAL BUSINESS as BUYER or SELLER in these shares.
ROYALTON TIN MINE.—M. G. recommends the purchase of these shares.

M. R. Y. CHRISTIAN, ENGLISH AND FOREIGN STOCK AND SHAREDEALER, 6, BOND COURT, MANSHION HOUSE, E.C.
MR. Y. CHRISTIAN'S "FINANCIAL GAZETTE" should be consulted with a view to the safe employment of capital. It contains Original Articles, and a Comprehensive Review of the Stock and Share Markets. Also, particulars of the best paying investments of the day, including Banks, Railways, Insurance, Mines, Docks, Gas Companies, and a Selection of Investments paying 10 to 20 per cent. on outlay. To trustees, shareholders, and intending investors it will be found a very valuable publication, and should be consulted by those who have an interest in the state of the money market.
Mr. CHRISTIAN embraces the present opportunity of urging his clients and the investing public generally to obtain an interest in the NORTH LANTERN MINING COMPANY at once. The shares are remarkably cheap, and the present time offers a good opportunity for realising immense profits, whether the shares are bought as an investment or to sell again.
6, Bond-court, Mansion House, London, E.C.
Bankers: Bank of England.

CHONTALES GOLD COMPANY.—FULL PARTICULARS OF THE DIFFERENT CLASSES OF SHARES can be obtained on application to Mr. J. H. MURKINSON, No. 8, AUSTRIANS, E.C.

M. R. T. ROSEWARNE, 81, OLD BROAD STREET, LONDON, E.C.
T. R. has BUSINESS in the following mines, at close market prices:—
Calbeck Fells. East Basset. Tincroft.
Chiverton. Frontino and Bolivia. West Chiverton.
Chontales. Great Wheal Vor. West Seton.
Cook's Kitchen. Marke Valley. Wheal Agr.
Devon Consols. North Down. Wheal Crebor.
East Grenville. North Roskear. Wheal Grenville.
East Caradon. South Caradon. Wheal Seton.
T. R. recommends the immediate purchase of good tin mine shares, which are certain to have a great rise in price; also Chiverton Moor shares at present price 40s to 42s. These shares are safe for a great rise within the next nine months, I recommended Prince of Wales shares when 8s. to 10s., and they have since been 22s. I am still able to give bona fide advice as to what should be done in these shares, for cash or time. East Carn Brea shares should not be lost sight of at present prices, 6s. to 7s. These shares have been as high as 22s. and above. Bedford Consols and Bedford United shares should also be bought at present prices. Parties desirous of making an exchange of shares can do so through me without an extra charge.
I am a SELLER of Don Pedro shares, for time on, below the present market price; also of Yudanmuta and St. John del Rey shares.
Money advanced on good mining shares.
Bankers: Bank of England.

INVESTMENT, LOAN, AND BANK AGENCY.
Established 1839.
Attention is invited to the system adopted by this Agency, which offers peculiar advantages to Investors.
English and Foreign Public Securities of every description Bought and Sold, in any quantities, at the current quotations of the day, free of Commission.
LOANS granted, for one year or any shorter period, on Stocks and Shares having a market value.
FIVE PER CENT. INTEREST allowed upon DEPOSITS of all amounts withdrawable at one month's notice.
Bank and Finance Agency Business generally undertaken.
TAYLOR AND COMPANY.
No. 12, Clement's-lane, Lombard-street, London, E.C.

M. R. CHARLES THOMAS,
MINING AGENT, GENERAL SHAREDEALER, AND AUCTIONEER,
3, GREAT ST. HELEN'S, LONDON, E.C.

Third Edition, price One Shilling; post-free, fourteen stamps.
MINING FIELDS OF THE WEST:
A PRACTICAL EXPOSITION OF THE PRINCIPAL MINES AND MINING DISTRICTS OF CORNWALL AND DEVON.
Published by CHARLES THOMAS, At No. 3, Great St. Helen's, London, E.C.

MESSRS. LANE AND GIBBS, 2, ROYAL EXCHANGE,
LONDON, E.C. (Members of the Mining Exchange), STOCK AND SHAREDEALERS, transact business in all kinds of securities at closest net prices for cash or account.
Bankers: London and County Bank.

ESTABLISHED SIXTEEN YEARS.
GRANVILLE SHARP AND COMPANY,
STOCK AND SHAREDEALERS,
32, POULTRY, LONDON, E.C.
DIVIDENDS 10 to 20 PER CENT. PER ANNUM.
The following are Safe and Profitable Investments.

Name of Mine.	Price per share.	Dividends per share.	Interest per cent.
Devon Great Consols	43 0 0	10 0 0	Bi-monthly 12 1/2
Great Laxey	18 0 0	10 0 0	Quarterly 10 15
Herodfoot	42 10 0	10 0 0	Four-monthly 10 12 1/2
Marke Valley	7 15 0	10 0 0	Bi-monthly 12 15
Providence	22 0 0	10 0 0	Quarterly 9 0
South Caradon	34 0 0	10 0 0	Bi-monthly 8 15
Tincroft	13 0 0	10 0 0	Quarterly 7 12 1/2
Trumpet Consols	14 0 0	10 0 0	Quarterly 14 5
West Chiverton	62 0 0	10 0 0	Quarterly 12 17 1/2
West Wheal Seton	157 10 0	10 0 0	Bi-monthly 19 0
Wheal Mary Ann	17 10 0	10 0 0	Quarterly 20 0
Wheal Kitty (St. Agnes)	3 0 0	10 0 0	Quarterly 13 5

Stocks and Shares BOUGHT and SOLD at the closest market prices of the day.

INVESTORS, SHAREHOLDERS, CAPITALISTS,
Seeking valuable and reliable information and safe investments, should read

SHARP'S INVESTMENT CIRCULAR (free).
It is the safest and most reliable guide published, containing information upon
English and Foreign Railways. Railway Preference and Debentures.
British and Foreign Mines. Insurance, Docks, Canals.
Colonial Government Securities. Foreign Stocks and Bonds.
Land Companies and Water Works. Financial and Discount Companies.
Navigation Companies, &c., &c. American Securities, &c., &c.

GRANVILLE SHARP AND CO. have BUSINESS in the following mines:—
East Grenville, 42s. Don Pedro, 43s.
Wheal Grenville, 41s. 3d. 40 E. Grenville, 42s. 6d.
Wheal Butler, 46s. 1/4. South Herodfoot, 41s. 1/2. West Basset, 42s. 1/2.
Chiverton Moor, 46s. East Chiverton, 41s. 1/2. Wheal Chiverton, 41s. 1/2.
GRANVILLE SHARP AND CO. are BUYERS of the following, for cash:—
2 West Wh. Seton, 41s. 10s. 10 Wt. Chiverton, 46s. 10s. 17 Trumpet Consols.
Bankers: London and Westminster, Lothbury, London, E.C.

M. R. HENRY MANSELL,
44, THREADNEEDLE STREET, LONDON, has FOR SALE the following shares at net prices:—
35 Drake Walls, 8s. 3d. 3 Great Wh. Vor, 41s. 10s.
15 Chiverton, 41s. 10s. 3d. 40 E. Grenville, 42s. 6d. 50 Prince of Wales, 39s.
20 Chiverton Moor, 46s. 6d. 20 East Lovell, 47s. 6d. 5 Tincroft, 41s. 10s.
20 Chontales, 42s. 6d. 20 Frank Mills, 42s. 6d. 25 Wt. Grenville, 26s 8d
10 Cook's Kitchen, 41s. 10s. 35 Great Retallack, 42s. 6d. 90 Wheal Crebor, 6s.
BUYER of Tamar Valley and Great South Chiverton.
References exchanged.
Bankers: London and Joint-Stock Bank.

M. R. THOMAS SPARGO, STOCK AND SHAREDEALER,
224 & 225, GRESHAM HOUSE, OLD BROAD STREET, LONDON, E.C.

M. R. E. J. BARTLETT, STOCK AND SHAREDEALER,
No. 30, GREAT ST. HELEN'S, LONDON, E.C., has SPECIAL BUSINESS as a BUYER or SELLER of shares in West Godolphin, Summer Hill, North Pool, and New Lovell.
E. J. B. deals in every description of Mining, Insurance, and other Stocks and Shares, and invites transactions from holders of stock difficult of sale in the open market.

Established Twelve Years.
MR. FREDERICK WM. MANSELL, 44, THREADNEEDLE STREET, LONDON, is in a position to deal in all marketable shares quoted on the last page of this day's Journal, and has FOR SALE the following, free of commission:—
25 Chiverton Moor, 46s. 6d. 3 Great Laxey, 18s. 100 W. Pr. of Wales, 10s.
5 Cook's Kitchen, 41s. 10s. 10 Retallack, 42s. 6d. 6 South Basset, 42s. 6d.
100 Drake Walls, 9s. 6d. 5 Gt. Wh. Vor, 41s. 10s. (call paid).
10 East Caradon, 42s. 6d. 5 North Roskear, 41s. 10s. 2 Wheal Basset, 47 1/2s.
60 East Grenville, 42s. 6d. 20 Prince of Wales, 39s. 25 Chiverton, 41s. 10s.
5 East Lovell, 47s. 6d. 15 So. Herodfoot, 25s. 30 Grenville, 27s. 6d.
25 Frank Mills, 42s. 6d. 5 Tincroft, 41s. 10s. 2 Seton, 44s. 6d.
Mr. MANSELL will return from visiting the Great South Chiverton and Tamar Valley Mines on Tuesday or Wednesday next, when every information respecting them can be had on application.
Mr. MANSELL is a BUYER of Tamar Valley, Frank Mills, and Great South Chiverton. Sellers will please state number of shares and lowest price.
A daily list of closing prices will be sent on application.
All orders for the account must be accompanied by a reference.
Oct. 9, 1868. Bankers: London Joint Stock Bank.

JAMES SCOTT AND CO., STOCK AND SHAREDEALERS,
14, PINNER'S HALL, OLD BROAD STREET, LONDON, E.C.
J. S. and Co. are BUYERS and SELLERS, for cash or the account, of shares in any of the undermentioned mines, at quoted or intermediate prices (free of commission):—
Anglo-Brazilian 8s 9d to 11s 3d Port Phillip £1 10s to £1 11 3
Bedford Consols 10s .. 11s 3d Prosper United 5s .. 10s
Chontales £ 2 1/2 to £ 2 1/2 Prince of Wales 37s 6d .. 39s
Chiverton 13 1/2 .. 2 Princess of Wales 2s .. 3s
Chiverton Moor 6s .. 6s 1/2 Rossa Grande 16s 6d .. 18s
Don Pedro 3 4 0 .. 3 6 S. Condurrow (call pd.) 1 1/2 .. 1 1/2
East Caradon 3 .. 3 1/2 South Darren 1 1/2 .. 1 1/2
East Carn Brea 5s .. 5s 1/2 St. John del Rey 18 .. 19
East Grenville 2s .. 2s 1/2 West Chiverton 60 .. 62
East Lovell 3s .. 3s 1/2 West Caradon 2 .. 3
Frontino and Bolivia 13s .. 15s West Great Work
Great Laxey 18s .. 19s 1/2 West Prince of Wales 7s .. 9s
Great Wheal Vor 11 1/2 .. 12 Wheal Grenville 24s .. 26s
Lucy Phillips 1 1/2 .. 2 Wheal Seton 45 .. 48
Marke Valley (call pd.) 7 1/2 .. 8 Wheal Uny 13 1/2 .. 14
No. Treskerby (call pd.) 7s 6d to 12s 6d Yudanmuta 2 18 9 .. 3 1 3
Pestarena 13s .. 2

Money advanced on marketable mine shares at 5 per cent. per annum.
J. S. and Co. having in their employ several of the most experienced and trustworthy mine agents in the United Kingdom, who periodically inspect on their behalf all the bona fide mines in Devon, Cornwall, and Wales, are enabled to accord to their friends and clients reliable advice as to the present and future prospects of mines they deem worthy the attention of investors.
References will be given to the Alliance Bank and the Bank of England.
J. S. and Co. can recommend several good low-priced shares likely to rise considerably in value within a few months.
M. R. EDWARD BREWIS, STOCK AND SHAREDEALER,
34, OLD BROAD STREET (two minutes' walk from the Bank of England) and 93, BISHOPSGATE STREET WITHIN, LONDON, E.C., has for SALE free of commission at lowest quoted prices for cash, account, or time on:—North Levant, 3 Wheal Seton, 16s East Bette Hill, 50 Don Pedro, 40 Pestarena, 10 Up, 5 Cargill, 150 Royalton, 10 Great Rhosmor, 270 Gian Alun, 188 North Treskerby, 50 Frontino and Bolivia, 50 Prince of Wales, 35 East Grenville, 25s Grenville, 3 West Chiverton, 21 Chiverton, 45 Chiverton Valley, 25 New Chiverton, 15 Chiverton Moor, 1 Minera, 100 Lovell Consols, 50 Wheal St. Vincent, 20 Rose-cliff and Tolcarne, 2 Mary Ann, 24 Lucy Phillips, 100 West Kitty, 10 Rose and Chiverton United, 50 East Carn Brea, 50 South Condurrow, 160 West Godolphin, 1 West Seton, 15 Clifford, 3 Emily Henrietta, 50 Worthing, 100 Anglo-Brazilian, 100 General Brazilian, 175 West St. Ives, 5 Great Laxey, 25 Yudanmuta, and 30 Prosper United.
DEALER in every description of mine shares. Price List post free to any part.

Original Correspondence.

NEW SYSTEM OF IRON AND STEEL MAKING—No. IV.
BY G. J. AND T. C. HINDE.

Having investigated the separation of the oxygen combined with the ore, we will now consider the removal of the earthy matters which may be associated with it. If we expose a piece of pure oxide of iron to the heat of a smith's fire it readily melts, but no chemical change is effected. It is simply melted oxide of iron, instead of solid oxide of iron. If we expose a piece of iron ore in which silica is associated with the oxide of iron to the heat of a smith's fire, chemical action ensues, the whole melts, and the silica unites with the oxide of iron, forming a new compound—silicate of the oxide of iron. In neither case is any metallic iron produced. If we expose a piece of ore in which silica is present to the action of carbon in a crucible, not raising the temperature so high as to melt the ore, the carbon withdraws the oxygen from the oxide of iron, leaving metallic iron—the silica remaining in an unaltered state. It is a well-known law of chemistry that simple bodies only combine with simple bodies, and compound bodies only with compound bodies. By the withdrawal of the oxygen the compound body, oxide of iron, has been reduced to the simple elementary body, metallic iron; while the compound body, silica—i.e., oxide of silicon—being unaltered, remains still a compound body. By the law we have just mentioned no combination is possible, therefore, between the simple body, the metallic iron, and the compound body, the oxide of silicon. If we now bring into contact with this silica some compound body for which it has an affinity, lime for instance—i.e., the compound body, oxide of calcium—chemical action takes place between the silica and the lime, they unite, and melting, form the new compound body, silicate of lime, leaving the metallic iron free. If we melt iron ore in which silica is present, with lime, without first removing the oxygen from the oxide of iron, chemical action ensues between the three compound bodies—the oxide of iron, the oxide of silicon, and the oxide of calcium; they all melt, and a new compound is formed, consisting of silicate of the oxide of iron, and silicate of the oxide of calcium; no metallic iron being separated. In these facts are comprehended the whole principles of separating the earthy matters from the metallic iron by the fusion process, commonly termed "fluxing." It will be seen that the removal of the oxygen from the oxide of iron, so as to bring the oxide of iron into the condition of the simple elementary body, metallic iron, is absolutely essential to the success of the operation. If the oxygen is not first removed, the oxide of iron melts with the silica and the lime, and all unite together in the "cinder," or "slag," as the silicates of iron and lime are called. This removal of the earthy matters present in the ore by the fusion or fluxing process is an operation requiring a high temperature, and, of course, therefore absorbing a corresponding amount of heat, and thereby increasing the consumption of fuel. The cost of the lime for fluxing, too, has to be added, and in some districts this amounts to a considerable item. The increased cost of obtaining a ton of iron from poor ores, in which much earthy matter is present, as compared with the hematites and other ores containing a high percentage of oxide of iron, is, of course, attributable to the cost of the lime, and of the extra fuel needed for the melting of so much slag, and the expense entailed in getting rid of this slag, or refuse. As the earthy matters present in the ores are not chemically combined with the oxide of iron, but only mechanically associated with it, we should expect that they would be removed to a considerable extent as a preliminary operation, by mechanical means, such as crushing and washing. But an imperfect smelting operation which prevents the use of crushed ore, necessitates the additional evil of leaving the whole of the earthy matters unseparated from the ore when charged into the furnace. With an improved smelting operation, however, conducted with pulverised ores, we are enabled, wherever the nature of the ore renders it desirable, to avail ourselves of the crushing and other processes, which are used with every metallic ore except iron, for the separation of the earthy matters. We will briefly point out the advantages of the mechanical method of separating the earthy matters over the fusion, or fluxing, process. The separation can be effected at the mine, thereby saving the cost of carriage of the earthy matters from the mine to the furnace. The more completely these earthy matters can be removed from the ores before being charged into the furnace, the more completely do we remove the danger of the iron being combined with injurious alloys of silicon, &c., derived from these earthy matters. The lime is required solely for the purpose of fluxing the earthy matters, and just in proportion as we lessen their quantity we lessen the quantity of lime required, and, of course, of the fuel consumed in melting them and the lime into slag. And, finally, the quantity of this slag which we have to remove from the furnace, and then spoil land by its deposit, is proportionately decreased. It is not necessary to go into detail as to the methods of washing, &c.; they are thoroughly well understood in all districts where metallic ores, other than of iron, are raised, and we have seen, in Cornwall, many tons of iron ore crushed and washed, at a very low cost, till the earthy matters were separated, with a perfection which left nothing to be desired, careful analysis showing that not one per cent. was left in the ores. With advantages so manifestly on the side of the mechanical as opposed to the fluxing system of separating the earthy impurities, we can have no hesitation in saying that, whenever other circumstances permit, the mechanical separation should be adopted to the utmost available extent. The simple truth is that, whether we speak of the furnace or of the iron, the best way to get the impurities out of either one or the other is not to put them in. Our system is based from end to end on this cardinal principle, that the only true method of obtaining pure iron from the ore is to prevent any combination of impurities with the iron at any period of the process.

We will now summarise our conclusions as to the true principle of obtaining malleable iron from the ore. Some of these are equally applicable to the production of either malleable or fusible iron, and it is not necessary, therefore, to repeat our demonstration of those which we established when treating of cast-iron. We find that the removal of the oxygen from the ore should be effected in an atmosphere of carbonic oxide. That the malleable iron resulting from this removal of the oxygen from the oxide of iron must not be alloyed with carbon, or any other body, by which it would be converted into fusible iron. That for the effectual separation of the oxygen from the oxide of iron, and for the combination of the earthy matters with the flux, it is requisite that both the ore and flux should be in a pulverised condition. That the earthy matters should be removed from the ore by mechanical means, as far as practicable. And that, finally, the fuel should not be in contact with the ores.

And now as to the mode by which these conditions are to be realised. The furnaces are constructed (as described in our article upon the manufacture of fusible or pig iron) so as to avoid the contact of the fuel with the ore. The ore, flux, and carbon, in a pulverised and intimately mixed state, are charged into the furnace, as we described in the production of fusible iron, the only difference in the mixture being that the quantity of carbon in it must be reduced so that no more is present than is requisite to ensure the removal of the oxygen from the oxide of iron. When the vertical type of blast-furnace is used, as described in our previous paper, and the mixture of ore, flux, and carbon incorporated into lumps, the furnace may be kept at its full heat throughout, as the lumps will have time to be gradually heated in their descent. When the horizontal type of blast-furnace is employed, the blast should be moderated when the mixture is first charged into the furnace, and until the oxygen has been separated from the oxide of iron. The mixture of ore, &c., should be turned over in the hearth with a "rabble," or some similar tool, to bring all to an equal heat. As soon as the carbonic oxide has done its work, by removing the oxygen from the oxide of iron, pure malleable iron results. As we have seen, no union takes place between this iron and the earthy matters associated with the ores, and the blast may now be turned fully on, and the furnace raised to its highest temperature. The particles of malleable iron assume the soft pasty condition, and cohere or weld together, whilst the flux combines with the earthy matters, forming a fusible cinder or slag, which is tapped out through the aperture made for this purpose. The mass of malleable iron which has formed in the hearth of the furnace is turned over, to bring the whole to an equal heat, and then removed through the door of the

furnace, and taken to the hammer or rolls, and there brought down to the required size or shape. If the operation be properly conducted, as we have described, the whole of the iron is obtained from the ore in a state of the greatest purity and freedom from admixture. The advantages of this system must be so manifest that we need not stay to enlarge upon them. By its adoption we shall save enormously in labour and fuel, prevent the waste of iron, secure a product of the purest and best quality, while the cost of plant and machinery will not even approach the outlay which is necessary to produce an equal amount of iron by the existing method. And we now propose showing what are the results of the present method, both as regards cost and quality.

We have stated that all the malleable iron produced in Great Britain is made from pig-iron. This pig-iron is, of course, smelted on the fusion process, which we have described. The oxygen is removed from the oxide of iron, and a sufficient percentage of carbon alloyed with the iron to render it fusible, and so enable it to run from the furnace as cast or pig-iron. This pig-iron has then to undergo the puddling or refining process, already described as consisting of an oxydising operation, by which the carbon which renders the pig-iron fusible is oxydised and removed, the iron then assuming its infusible, malleable condition. We are assuming for the moment that carbon is the only alloy, and that this carbon can be wholly removed in the puddling process: we will hereafter refer to the more hurtful alloys which are combined in the pig-iron, and which cannot be wholly removed in the puddling process, the resulting malleable iron being impaired greatly in its quality by the portion of these impurities it retains. A quantity of Cleveland ore containing one ton of metallic iron—say, about three tons of raw ore—is ordinarily delivered at the works for 13s. 6d., and sometimes for less than this sum. The cost of a ton of malleable iron unmanufactured—that is, in a bloom or billet—is not less than 47s., irrespective of the cost of the machinery for the blooming. That is to say, the landlord's royalty, the miners' wages and other costs of extraction, and the carriage of the ore to the furnace are all included in a total of 13s. 6d. The removal of the oxygen and earthy matters from this quantity of ore costs 37s. 6d. It may be supposed that this excessive cost arises from the quantity of earthy matter with which the oxide of iron is associated in the Cleveland ore. In answer to this supposition, we will take a selected sample of the very best hematite ores, containing only three to five per cent. of earthy matter. A quantity of this ore containing one ton of metallic iron can be bought for 25s., delivered at the furnaces in Lancashire. A ton of blooms cannot, therefore, possibly be produced under 47s.; the cost of the ore-ton of metallic iron is 25s., and the cost of removing the oxygen and the five per cent. of earthy matters is 37s.; thus, closely approximating to and proving the correctness of the result given by the Cleveland ore. The average percentage of alloy in pig-iron may be taken at from three to five per cent. We have, therefore, the singular and suggestive fact that the alloy in pig-iron made from the purest samples of hematite is actually equivalent in weight to the earthy matter contained in the ore from which the pig-iron was obtained. We are naturally led to enquire what is the result of oxydising and removing this five per cent. or less of alloy from the pig-iron, and the answer is really startling. To remove this alloy not less than twenty per cent. of all the iron extracted from the ore has to be wasted, and converted into cinder! And in not one iron-works in all Britain is a better result achieved: Twenty per cent. of all the metallic iron obtained from the ore is wasted and turned into cinder, in order to oxydise and remove the impurities which have been intentionally combined with the iron, in order to produce the pig metal. And, in addition, a considerable sum has to be expended in red ore, &c., for setting, in order to provide the requisite oxygen for removing this alloyed matter. There is little hope of reducing this waste, none of preventing it. It is inherent in the nature of the process. The carbon and other alloys are most intimately united with the pig-iron, and it is impossible to bring the oxygen into contact with these without also exposing the iron to its action, and the consequence is the great oxydation and waste of iron which we find to occur. Nor is this all the mischief; some of the more hurtful alloys, notably sulphur and phosphorus, cling with such tenacity to the iron that if the pig-iron contains any considerable alloy of them their traces remain even after the most careful puddling, and the quality of the malleable iron is proportionately injured. But further, none of the iron made from puddled bar is first-class in quality. If the quality termed "Best Best" in Staffordshire, and "No. 2" in Wales, is required, the malleable bar-iron must undergo another operation, and more cost and more waste must be incurred. These, then, are the economical results of the present mode of making malleable iron: a cost varying from three to six times as much as a ton of metallic iron costs when in the ore; a waste of twenty per cent. at least of all the iron produced; and, after all this cost and all this waste, the best malleable iron is not produced, and if required, can only be obtained by still more cost and still more waste. But, infinitely bad as the results of the present method of manufacturing malleable iron prove to be when investigated, they are certainly not worse than must be expected when we reflect that they are arrived at by processes which are diametrically opposed to true scientific principles. Such results could only have been regarded, not as satisfactory, but even as endurable, in the belief that they were the best of which the circumstances admitted, and so great an anomaly as the intentional combination of pure iron with an alloy, which must be afterwards removed with enormous waste and expense, could only have been acquiesced in because it was thought inevitable. But with a system now available, based upon scientific principles, in accord with the fixed and incontrovertible laws of chemistry, and by which, therefore, true results are attainable, the present method of manufacturing malleable iron by puddling cast-iron must speedily and wholly pass away, and it will be known as a matter of historical record alone that such a process, absolutely wrong in theory and utterly unsatisfactory in results, once formed a part of the metallurgical industry of Great Britain.

In our next paper we purpose treating of the Manufacture of Steel, analysing existing processes, showing the errors which they involve, and pointing out the means by which those errors may be corrected.

THE BRISTOL COAL FIELD.

THE PARKFIELD COLLIERY.

The Bristol coal field to the north of the River Avon, in South Gloucestershire, is contained in an area of about 14 by 5 = 70 square miles. The coal field to the south of the Avon, in North Somersetshire, is contained in about 150 square miles. The coal formation may be said to be divided into two basins by an anticlinal line, which passes from Wick through Kingswood, and on westward to Bristol. On the north, west, and southern sides of the coal field the Carboniferous Limestone and Millstone Grit are developed; on the south side in the Mendip hills, where a change of dip to the south again takes place. The lowest series of coal seams are said to crop out at Vobster Colliery, at a steep inclination, contiguous to the Millstone Grit. There is a probability of a continuity of coal seams south of the Mendip hills. On the eastern side of this coal field the Carboniferous Limestone and Millstone Grit are not developed; the upper formations are only seen—so that there is some uncertainty as to the boundary on that side. In the northern part of the coal field the coal measures are estimated to be 2000 yards thick, and consist of four series of coal beds:—

1.—Above the Pennant rock, 4 seams 800 yards of strata.
2.—The Pennant rock, containing 3 small seams of coal not worked 500 " "
3.—The Kingswood series, 15 workable seams, of the aggregate thickness of 30 ft. 900 " "
4.—The Bedminster and Ashton series, 4 workable seams, of the total thickness of 14 ft. 300 " "

Total 2000 yards of strata.

The coal seams crop out to the surface in a very small part of the total area of the coal field, the upper formations—viz., the New Red Sandstone, the Lias, and, in some places, the Lower Oolite—overlying the coal measures, which will render a great part of the coal in this field difficult to obtain. A sinking from the first series of coal seams to the lowest, or Ashton series, in the centre of the northern end of the coal field (supposing the measures to be developed, and of the thickness given above), would be 6000 ft., or 2000 yards, a depth which

is considered much beyond the limit available for working, and the Kingswood series would be 5000 ft. deep at their base at the same point. The same depth would probably have to be sunk in the centre of the southern end of the coal field to reach the lowest series of coal beds. A great part of the entire coal field is as yet undeveloped, and a large portion of the coal, it appears, lies too deep to be accessible for working. The coal at present obtainable is not worked to the extent that would be anticipated from its favourable situation; one reason for this may be the want of railway communication between the shipping in the harbour and the collieries. The North Somerset Railway, in course of formation, will form a communication with the Radstock and southern district and the harbour of Bristol. At present no coal is shipped, and there are no facilities for shipping coal in the harbour, but the sale of coal is confined to the towns of Bristol and Bath, and the country around in Gloucester and Somersetshire, and the adjoining counties of Berkshire and Wiltshire. Coal from South Wales is largely imported into Bristol, for house and steam purposes. This may arise from the Welsh coal being of a harder and more durable quality than the Bristol coal; but the latter should have a considerable advantage in less cost at the port, and, though less hard than the Welsh, the upper series of Bristol coals produce good house and smiths' coals, and some of it is suitable for gas manufacture, but, most of the coals being of a friable character, there would be a great loss from the small coal in producing good saleable large coal for the market, unless the small could be advantageously disposed of. This series of coals produce red ash; but the Kingswood and lower series produce coal adapted for steam, house, coking, and iron-making purposes, and form generally white ash.

The first series of Bristol coal seams seem to be analogous with the Bettws red ash seams of South Wales, the second series with the Rhondda Nos. 2 and 3 seams in the Pennant rocks, and the third and fourth series with the lower steam coal white ash seams, also worked in the Rhondda Valley and Aberdare.

Parkfield Colliery, near Mangotsfield Station on the Bristol and Gloucester Railway, is worked by Messrs. WETHERED, COSSHAM, and WETHERED, and is sunk to the upper series of coal seams. There are two drawing-pits—one 8 ft. upcast, one 9 ft. diameter downcast; at lower part; the upper part is larger, owing to there being only temporary walling in them. The pits are commenced in the New Red Sandstone (as will be seen from the section of strata in the pits given below), and are continued 20 yards below the Hollybush seam before drifting is commenced to that seam, and 10 yards more for a sump; the depth to the stone drifts is, therefore, 280 yards 1 foot. One winding-engine draws from these pits; it has two horizontal cylinders, 26 in. diameter, 4 ft. stroke, and 40 lbs. steam pressure; four boilers; and two rope roll drums, for flat wire-rope, 13 ft. diameter, which ropes endure about twelve months. This engine was erected in 1859, and has been worked continuously since that, three shifts per day; it was made by Mr. JAMES GREGORY, Kingswood Hill. There is one cage in each pit; each cage holds two tubs on one level, carrying from 8 to 10 cwt. of coal each tub; the tubs are made of wrought-iron, with wooden frame, and 9 in. cast-iron wheels under the body of the tub. The cages run each on two wooden guides fixed to buntons in the walling. The 9-foot pit is partly appropriated for the pumps, a part of it being partitioned off by stays or buntons for that purpose. The pumping-engine is of the Cornish type, steam-pressure being applied only on the top side of the piston for the up-stroke in the pit; the down-stroke is effected by the weight of the rods in the pit, the steam being equally balanced as to pressure on top and bottom sides of piston in that portion of the stroke. The pumping-engine cylinder is 54 in. diameter, 7 ft. stroke in cylinder and pit, steam condensed; two boilers. Top set of pumps, lifting 90 yards long, 12½ in. diameter; middle set of pumps, forcing 110 yards long, 10½ in. diameter; bottom set of pumps, lifting 90 yards long, 8½ in. diameter: total, 290 yards long. This engine goes constantly night and day, excepting Sundays.

Parkfield pits have been in operation underground 15 years. The workings may be described as commencing with a stone drift from each pit, which are 14 yards apart from their centres; these drifts go in a north-west and south-west direction from each pit respectively, gradually widening out until the Hollybush seam is met, at a distance of about 180 yards. These stone drifts are heavily timbered, showing the ground under that seam to be very loose and soft. Arching was put in at the bottom of the shafts three years ago; it is now very much broken and bulged in from side pressure; a part of it has been replaced by timber. From these drifts the levels in the Hollybush seams are driven north and south, and the coal worked out to the rise of the levels: the dip of the strata is to the west about 4 inches per yard. The Hollybush seam is being worked by a cross-cut to the dip, at the north end, nearly 1 mile long; 16 small horses, drawing 80 tons per day, and one 10-cwt. tub at once. The stone drifts are extended from the Hollybush to the Top seam, which is 23 yards above, about 200 yards of strong ground is passed through, and the Top seam is worked from north and south levels. The Hard seam, which is 36 yards above the Top seam, is reached by a rising stone drift, fitted up as a self-acting incline, by which the coal from the Hard seam workings is brought down to the Top seam at the south side of the colliery. At the north side of the stone drifts a pit is sunk 30 yards deep (locally termed a "tip") from the Top seam through the Hollybush; this tip is 8 feet in diameter, walled, fitted up with slides for two cages, and one tub in each. A vertical beam-engine and boiler are placed close to the top of the tip, 8-in. cylinder, 2-ft. stroke, 40 lbs. steam pressure; second motion 6 to 1, one boiler, 13 ft. by 3½ ft. Smoke way to upcast 350 yards long, no timber can be placed in it. One drum for round wire-ropes. From the bottom of the tip the Hollybush is reached by a short stone drift, and a narrow place is driven in that seam to the dip in a west direction; out of this levels are driven to the north and south; those to the north communicate with the cross-cut workings, before named; there are three levels to the south, the range of working to the rise of each being 140, 100, and 120 yards respectively; the first level is driven about 300 yards in south, the others about half that distance. The levels are driven 10 yards wide, stowed up close with debris in the middle, a horse-road being made at the lower side, and sometimes at the upper side also; in other cases only a small air-way at the upper side. The coal is got by long work, by driving from the levels, stalls, or "hatchins." These are 10 yards wide, and cannot in practice be driven more than 25 or 30 yards up in the Hollybush seam; it is found when this distance is reached the roads become so small that the timber has to be taken out, and the road enlarged; but they are not carried further in an ordinary way; 25 yards is usually worked to the rise and 25 yards to the dip of each level, so that the range between the levels by this process would only be 50 yards. The hatchins are kept in advance of one another; three at most are driven up together. The level roads require timber 9 or 10 in. thick, 2 ft. apart in many cases; road, 6½ ft. square; the stall roads, 10 yards apart, are of the same size, but smaller timber is used. The colliers receive 1s. per ton for cutting this coal mixed, which includes setting timber, laying rails, and stowing rubbish. There are strong boys who fill the coal, and take it out from the levels by the ton. There are usually two men and one boy in each hatchin, who will send out 7 tons of mixed coal per shift of 8 hours. Part of the small coal is left underground.

SECTION OF HOLLYBUSH AND GREAT VEINS, WHICH ARE WORKED TOGETHER.

Soft cinder, bad roof. Great seam 2 ft. 8 in.

Black shale 0 ft. 3 in. Soft coal, left 0 ft. 6 in.

Hollybush coal 2 ft. 4 in. Soft earth.

Holding cinder 0 ft. 9 in. to 3 ft. 0 in.

The Hollybush seam requires a very large quantity of timber of a

very heavy description to support the roof; the bottom is a loose and shifting mass of earth, as is evidenced in the drifts between the pits and this seam, and there is a constant repairing and replacement of timber going on in the various roads. The water made in the Hollybush in the workings below the tip is forced by a pump with a long lever, 9 ft., through 2-in. gas-pipe from the face to the tip; a similar pump forces the water from the bottom to the top of the tip; each pump is worked by a strong boy in each shift. The colliery altogether does not produce a large quantity of water. The highest seam—the Hard vein—is 2 ft. thick, irregular in thickness, good roof, and inferior coal. The Top seam, 2 ft. 4 in. thick, is of good quality, good roof. Both these seams are worked similarly to the Hollybush, except that the hatchins are made 15 yards wide, for two men and one or two boys; they need not be kept so far in advance of each other—say, 8 or 10 yards—can be driven to the rise a further distance, and four or five hatchins could be in operation at once to the rise of

the levels, instead of two or at most three in the Hollybush. The colliery works continuously three shifts in 24 hours. The first shift, from 6 A.M. to 2 P.M., is for coal working and drawing; the second shift, from 2 P.M. to 10 P.M., is for dead-work men, of whom there are about 70 employed; and the third shift, from 10 P.M. to 6 A.M., is for coal working and drawing. This system allows large quantities of coal to be raised and to be quickly worked out, which is most advantageous in the Hollybush seam. There are four overmen in the first shift, four in the second, and two in the night shift: 3500 tons have been raised per week at Parkfield by one engine. From the Hard seam, 140 tons per day, now got; from the Top seam, 120 tons; and from the Hollybush seam, 300 tons. About 180 men are employed cutting coal in the two shifts, besides boys assisting and tramming the coal: 55 horses and ponies, from 13 to 15 hands high, are employed underground, and six men are required to attend to them. No fire-damp is produced in any of these seams, and only a small quantity of black-damp. The air passes through the colliery in one current, excepting what passes through the Hard and Top seams, is divided, but unites again, and ventilates the Hollybush workings below the tip, and supplies the underground boiler; the furnace was out on our visit. The quantity of air in circulation is variable, probably not more than 6000 cubic feet per minute, and is principally caused by the boiler fire. It should be observed the coal is obtained without blasting, by wedging it, so that the ventilation altogether is easily managed. Part of the coal is screened at the surface, and part of it sent away mixed.

The Coal Pit Heath Collieries obtain about half the quantity of coal raised at Parkfield. A large fault, rising west above 200 yards, runs between the two collieries, changing the character of the seams, as there is some doubt as to the seams being of the same series at both places. The Shortwood Colliery and Brandy Bottom Colliery work each about 60 tons per day in the top series; one shift of men work on the coal by day, and another shift for dead work by night, which is the usual custom of this district. Coal is worked at Yate, but to what series it belongs is not made out. The principal collieries working the third series of coals are Kingswood and Easton, and these only in limited quantity.

The section of the strata in the Parkfield pit shows that, after passing through various red and blue marls and sandstones, including a blue sandstone with coal shales (in all 15 yards thick), the depth of 161 yards 1 ft. is completed by a red marl, 8 yards thick, and that the first small vein of coal, 6 in. thick, is reached with 17 yards 1 foot deeper sinking; this is divided from the second and third veins, 1 ft. and 6 in. respectively in thickness, by 8 ft. of soft fine clay-rock. The Hard Vein coal (1 foot 10 in. thick) completes another 10 yards 2 ft. 10 in.; and the Top Vein coal (2 ft. 4 in. thick) adds another 37 yards 10 in. to the depth. There is then 22 yards 1 ft. of shale, fire-clay, and stone followed by the Hollybush Vein (3 ft. thick), and this latter is separated from the Great Vein (2 ft. 10 in. thick). To the bottom of this vein the total depth is 260 yards 1 ft.

A COAL AND IRON MASTER ON THE COAL SUPPLY OF SOUTH STAFFORDSHIRE.

Upon the very grave question of the coal supply of South Staffordshire, noticed conspicuously in the current report of the Government Mines Inspector for that district, and to which we drew attention last week, we have had placed at our disposal, by a coal and iron master in South Staffordshire, information which we give pretty much in the form in which it has reached us.

This alarm of South Staffordshire being about to make its exit from the stage upon which it has hitherto played so conspicuous a part is no new thing. It was a well-known, and often repeated, observation of a coal and iron master, who spent nearly half a century of his life in business in the district, that South Staffordshire, according to the statements of the irresolute and the partially informed, was entirely done for,—to this he used to add that old South Staffordshire would weather them out yet, and that the district had life enough left in it to keep it in a foremost position for many a long year to come. The observations of that man—than whom no one was more competent to speak upon the subject—are as true now as they were then. A descendant of his caught a touch of the fever, which appears now and then to revive, declared that there was no more money to be made in this district, and, going to a new one, spent some 20,000£ of the profits of his trading in this district on the expectation of being able soon to concentrate the whole of his force away from this place. The money went, and he saw but little of it back again. A wiser, but not quite so rich a man—for he was a man of great wealth—he came back into South Staffordshire, and declaring that there was no place equal to it that he knew, however much might be said of other places, he bought an extensive tract of property, which he refused before he went away, but for which he now had to give more than three times the money he could have got it for at the earlier date. A relative of his, also, got a notion into his head, 10 years ago, that in two years from that time certain mineral property which he owned would be entirely worked out, and he did not care to make provision for any alterations or improvements in connection either with his colliery or his iron works, extending over a longer time. Now, however, that five times two years has passed, and the property has been worked all that time, he finds that it is worth more than he believed it to be at the commencement of the period.

This district is as much subject to ups and downs in respect of its supposed mineral capabilities as is the trade carried on in it. I need not tell you that here our strata are most irregular, and that one of our greatest difficulties is the water. Now and then some of us who have our property lying tolerably near to that of one another enter into an arrangement to keep our engines pumping for the mutual good much more regularly than we should do if we had only our own property in view. We do this by forming what we call an Association, and we divide the costs per arrangement. Six or eight good pumps always at work will do a great deal towards enabling us to go ahead and win the stuff in the pits. Now and then, however, there is a hitch; one of us gets into difficulties, not, of course, through any fault of ours, but because the fellows who have had our stuff have been unable to do what they promised upon those four months' bills, which is one of the greatest bane of this old district; or it may be that one or other of us gets dissatisfied with the rate of contribution; or again, a proprietor who is not in the compact stops pumping, either of necessity, or because he imagines he has nothing left worth pumping for. In some of these events many of us are so dependent one upon the other that much valuable property often remains for a long time apparently worthless, and it cannot be sold at any price. Presently, however, a neighbouring proprietor begins to pump again in one direction, and another in another, till some mines that were formerly under water now get released. A close observer of what is going on knows the effect that will be produced upon the seemingly worthless property, buys it, lays down his own pumps, and is soon at work. Two such cases have just come under my own observation. One was a property into which the water came so profusely that the pumps were drawn, the proprietors became bankrupts for a large amount, and paid less than nothing. Of course, the property so forsaken became of but very little value as an asset. Now, however, two or three enterprising men have taken it, and from it, after laying down pumps, are obtaining nearly all the stuff necessary to keep on the two blast-furnaces which form part of the same estate. That they will be able to continue to do so for many a long year to come they have the fullest confidence. The other case is that in which a proprietor has taken an extensive tract in the very midst of a district that has for some time been declared to have been long ago exhausted. After very little preliminary work he has come upon a splendid face of coal, from which he is now drawing 1000 tons a week, and out of which, before Christmas is here, he will be fetching 1600 tons. This last property was deserted 20 years ago. At that time it was said that the "old men" had got all that was in it. This "old men" tradition has done for mining property in this district what haunted legends have done for many a piece of house property. Presently, however, some person with common sense in his head, and a few pounds in his pocket, enters the market, defies the "old men" and the ghosts, and immensely profits by the credulity of other people. At one time, when we had the thick coal in all its entirety, people here would hesitate to look at stuff which it required some little

trouble to get, and it was declared to be like the salt which has lost its savour. It was neither fit, they said, for the blast-furnace, the puddling-furnace, nor the domestic fire. In the present day, however, it is found to be capable of use in the smelting of our ores, and in the manipulating of the product of that smelting, whilst plenty of it goes into the domestic market. Thousands upon thousands of acres of such fuel are yet to be brought up in this district. I have now before my mind's eye one of the leading firms in this district who are now almost entirely dependent upon it. They get it at a profit, and the position which their iron occupies in the market demonstrates the worth of the fuel after it has been gotten. There is another firm in the same line who for the last quarter of a century have been carrying on an extensive plant with fuel got from an estate which was then declared to be done for, and indeed was virtually abandoned. The concern is being worked at a profit, and that profit, I have good reason for believing, will become larger as time wears on, and the collieries long ago thought to be worthless are yet more developed.

The "old men," too, abandoned the brooch coal, if they found a little Cannel and some pyrites in it; but as you well know, Cannel is worth something now-a-days, since the chemists have learnt to make oil from it; and pyrites can be exchanged for money now that the same class of men can transmute that mineral into vitriol. Then, too, black coal, as distinguished from bright coal, which by some people is even yet thought to be of extremely little value, is being made by others capable of use in the blast-furnace. In short, I believe that we have as much fuel yet left in South Staffordshire as we have taken out of it. Doubtless the days of thick coal, at 5s. a ton, are over. The time will come when we shall have to pay 15s. for it; and the other kinds will proportionately advance. This will arise of necessity, for to get at some of the most valuable stuff that yet remains we shall have to pull down buildings that have been erected upon the surface. The value of what is below these erections may be conjectured from the fact that, as is well known in the district, one of the best pig-making plants here has been razed to the ground, for the purpose of getting the coal and the stone beneath, notwithstanding that new furnaces had to be put up elsewhere, to work up the stuff that it is known exists beneath the furnaces that have been taken down. At this moment some 1500 tons a week of thick coal is being gotten by one proprietor, from beneath Tipton Green, the adjacent buildings on the surface, notwithstanding. If a greater part of Tipton does not, by-and-by, succumb to the operations beneath the houses there, I shall be surprised; and I am inclined to believe that a similar destiny awaits the town of Bilston, notwithstanding that the ground upon which it is built is already so hollow that the joke is that an old Bilston collier can walk from one end of the town to the other, and can tell when he is close to the parish church. I may be told that all this will increase the price of the fuel so greatly that, as the Inspector seems to intimate, the capability of this district to compete with newer districts will not then exist; but the people who use these arguments seem to forget that during all this time the price of the commodities of other localities will be advancing. Indeed, it is notorious that already the fuel of all the localities which it has been asserted will effectually shut up South Staffordshire is fast becoming increasingly valuable, and that tracts of land there cannot now be got at anything like so low a figure as would have been taken for them a very short time ago. Alike under water and under surface erections, we have in this district thick coal and thin, which an increasing knowledge of its worth, and the greater value of the coal of other parts of the kingdom, will combine to make a source from which very many years of prosperity may yet be anticipated for old South Staffordshire.

The *Mining Journal* will return to this momentous question on an early occasion; for it is one of the importance of which, in a commercial sense, cannot well be overrated.

THE COPPER TRADE.

SIR,—I cannot help thinking that the writer of the letter signed "A Smelter," which appeared in last week's *Journal*, has been somewhat hypercritical in his strictures in reference to the paragraph which appeared in the previous number in reference to the copper trade. The writer of the paragraph in question simply traced the history of the copper trade at Swansea from its earliest commencement, showing that that port and district had been for two or three centuries past the chief seat of the copper smelting of the United Kingdom, and that in consequence of the neighbouring hills being long since denuded of vegetation, but little fear need be entertained of any unnecessary molestation on the part of landed proprietors or the local authorities. He also stated that such was not the case in Liverpool, where actions for alleged injuries to vegetation had taken place, and this "A Smelter" admits in his letter. Whether the actions were taken by "A" or "B" is not material to the point at issue—the effect is the same. Manufacturers of copper or any other article are not likely to remain in a district where they are daily liable to such vexatious actions; and the fact is undeniable, notwithstanding the assertion of "A Smelter," that many copper ore ships which formerly traded to Liverpool are now trading to Swansea; a larger quantity of copper ore vessels now being in Swansea than have been known for years past.

The superior advantages possessed by Liverpool over Swansea for the smelting of copper ore are unknown to all save "A Smelter," and probably only exist in his vivid and fertile imagination. The works of Swansea are the largest and the most perfect of the kind, not only in England but in the world; and also enjoy the very great advantage (not possessed by Liverpool) of having an abundance of coal within an easy distance, and consequently at a cheap rate.

For these reasons, therefore, I think the writer of the paragraph in question only stated the broad facts of the case in the assertions he made, and believe with him that Swansea is still destined to be the chief seat of the copper smelting in the kingdom.

ONE INTERESTED IN THE COPPER TRADE.

PRINCE OF WALES MINE.

SIR,—I have, as requested, inspected this mine to-day, visiting all the important points, especially the "supposed new lode," and the following is my report thereon:—The lode in the 65 fathom level end east is worth 16£ per fathom, but not so healthy in character as when seen in the 55, and although it might improve a little on next taking down, the ore ground will be found very limited in this drive. The 55 west is a strong-looking lode, worth 18£ per fathom, and will evidently fall off in value on next taking down. The 55 east is poor, and too delicate to produce ore. The bottom of this level is down about 2 fathoms; there are strings of ore in the lode, but nothing to value. This winze is 5 or 6 fathoms in advance of the 65 fathom level end. The "supposed new lode" was worth 10£ per fathom for 6 or 8 feet, when first taken down, but the present end is ore, but not to value. I am of opinion it is not a new lode, but a "bastard branch" or "floor," gone off from the main lode. I think it a waste of money to continue a cross-cut in the 55, in the hopes of cutting a "myth." The mine is not half the value it was when I last inspected it, 14 months ago. The engine-shaft has been suspended sinking for a long time, in consequence, I suppose, of the ore ground in the 65 having the appearance of being unbottomed.

Truro, Oct. 8.

WILLIAM TOSKIN.

CHONTALES GOLD AND SILVER MINING COMPANY.

SIR,—I read with surprise the letter in last week's *Journal* with reference to this mine, written by "An Original Shareholder." I am glad he signed as such, or I could not have believed a holder could possibly have such an extraordinary small idea of the late immense progress at the company's mines. I hold firm (and intend to do so, and increase my interest when convenient) rather a large number of shares, which cost me par, and I am not at all discouraged (as the writer in last week's *Journal* appears to be) at the highly satisfactory results now pending under the excellent and efficient management of Mr. Belt, who has now, undoubtedly, re-established the whole of the works, and thoroughly reorganised the staff. All, in my idea, that is now required (and it is unfair to complain; the executive have done their best) is simply more time, in order to get a complete establishment, and a large battery of stamps erected in addition to the cups, and in full working order, when we shall very soon see what a thoroughly practical superintendent we possess in Mr. Belt, and will learn how to value him fully. I presume "An Original Shareholder" read the last highly satisfactory report from the mines, and seems disappointed with the so-called rubbish—immense quantities of stuff, yielding 1½ oz., 1 oz., 10 dwts., and 3 dwts. of gold per ton of stuff. (Note, nearly the last paragraph in the report Mr. Belt states—"I shall only now state that what I have to lay before you will prove that all my statements with regard to 'large profits' as soon as efficient stamps are erected have been grounded on a solid basis.") I feel certain, even if the foregoing so-called rubbish (vide report) should eventually average only ½ oz. per ton, that under Mr. Belt's excellent manipulation the shareholders will periodically be enabled by a share of the said "rubbish" running into their pockets in the shape of dividends.

With reference to the previous statements of the late Capt. Francis, who was a very worthy, honest, practical agent, I believe eventually we shall find that he has not misled us. The Consuelo Mine is improving, and turning out well; rich discoveries are liable at any period to occur. The mine is still in its infancy. The others will follow in its footsteps when opened out, I believe; and, lastly, that the Pavon Mine (which is yet untouched by Mr. Belt, and valued by

him at over 30,000£, not a bad price for "rubbish") when worked will materially assist to richly repay us for our patience and outlay of capital. Considering that the lode is a continuation of its rich neighbour, the immense area of stuff we possess, and the discoveries that will ultimately be made, these will fully justify the late Capt. Francis's report. I have not written this as a direct answer to "An Original Shareholder," but as a proprietor, simply to give you my cheerful view of the state of our affairs, which I think most satisfactory, and highly creditable to the executive in Gresham-house, also our worthy commissioner at the mines, who understands his business, and will surely place them in a prominent position, and the shares at a long price. Considering the late immense profits from the St. John del Rey, whose produce averaged ¾ oz. per ton, I think the Chontales, with effective stamping machinery, need not despair, with their valuable mines of comparatively surface work.

Oct. 7.

A FIRM SHAREHOLDER.

POSITION AND PROSPECTS OF MEXICO.

SIR,—As we did not receive any correspondence from Mexico by last mail, it was not in our power to prove that the article which appeared in the *Times* was unfounded. It alluded in general to a dreadful state of things in that Republic—anarchy, revolution, &c., but gave not one single fact or data for its assertions, which was most comforting to all Englishmen resident in London who have great interests in that country. We are now able to prove, through the last advices received by the French mail of the 8th present, that the country not only is, but has been, free from revolution since the expedition to Yucatan. And we can now confidently state that the so-called revolutions have been nothing more than small detachments of Government troops, that have been engaged in destroying here and there bands of highway robbers. As regards the financial state of the country, the Ministry of the Treasury has informed us that the Government, after paying all officials, both civil and military, with great punctuality, have a sufficient balance in hand for making arrangements as regarded their foreign debt. We imagine this state of things does not look quite so unsatisfactory as the article in the *Times* made out; and the subsequent rise in Mexican bonds, I imagine, is a practical proof that such is not the general opinion as to the state of things in Mexico; and before long we can confidently assert, from data we shall be able to produce, that diplomatic relations will be renewed by the Mexican Government.

SEVERAL ENGLISHMEN WITH INTERESTS IN MEXICO.

FOREIGN MINING AND METALLURGY.

The important industrial enterprise known as J. F. Cail and Co. has just held its annual meeting at Paris. It was stated that the business of the company had been greatly stimulated and encouraged by the results of journeys made in Egypt, and in the colonies of the Antilles, by M. Alfred Cail. It was also stated that the contract concluded with reference to the Kiew and Balta Railway was turning out pretty well. A dividend was declared of 3£ per 20£ share, being at the rate of 15 per cent. per annum. A certain check in the demand for iron is remarked in France; nevertheless, the situation remains good, the rolling mills being well provided with work, and prices being maintained with tolerable firmness. At St. Dizier, puddled charcoal-made iron is quoted at 87 1/2 to 87 1/4 per ton; mixed ditto, 87 1/2 to 87 1/4; and coke-made ditto, 77 1/2 to 77 1/4. In the Moselle, disposable pig brings 27 1/2 to 27 1/4 per ton; much activity is remarked at some of the Trevaux of this group, which are forwarding large quantities of rail and accessories into Germany and Austria. Refining-pig remains quiet in the Marne, at 27 1/2 to 27 1/4. The Frouard blast-furnaces and foundries in this group have been purchased for 14,000£ by the Montataire Forges Company. The Frouard Works form the third great establishment of the Montataire Company, which possesses also the Montataire Rolling Mills in the Oise, the annual production of which is 20,000 to 25,000 tons of iron and plates, and the Outreau blast-furnaces, in the Boulonnais district, the capacity of which is considerable. The Trevaux blast-furnaces, in the Meuse, have been disposed of for 20,000£ to M. Grosdidier, who already works in this group the Commerce Rolling Mills and another establishment near Vold. The Marselles Gas-Lighting and Blast-Furnaces and Foundries Company, with which enterprise are associated the Portes and Senéchas Mines, is paying this month the balance of the dividend for 1867, or 13s. per share.

The price of Chilean copper has given way to some extent at Havre—from 69£ per ton for disposable to 68£ 8s. and 68£ 4s. per ton, while lots to be delivered in a short period have receded from 70£ to 68£ 16s. per ton, Paris conditions. At Marseilles the demand appears to be in a languishing state, and a fall is noticed of 2£ per ton in refined Chilean and Peruvian, and also in rolled red copper for sheathing, which are quoted respectively at 78£ to 84£ per ton; other descriptions remain without change. The Paris copper market has presented little animation; Chilean in bars has been feeble at 68£ 10s. to 69£ per ton; ditto in ingots, 73£ to 71£; and Corocoro mineral, 70£ 10s. per ton. On the various German markets the article maintains its position at preceding rates; a more animated demand appears to be favoured by the present low prices, but at present the sales are scarcely exceed the current requirements of consumption. The Dutch tin markets present a very quiet aspect, the trade awaiting the result of the Dutch publications. From rather incomplete information which has reached us as to the sale held last week at Amsterdam by the Society of Commerce, it appears that 89,587 blocks of Banca were disposed of at 21£ 16s., and 1421 blocks of Billiton at 21£ 12s. The Paris tin market presents favourable tendencies, Banca making 96£, Detroit 94£, and English 92£ per ton. At Hamburg, Berlin, Cologne, and Stettin tin has maintained itself firmly at former rates. Most of the continental lead markets continue dull and quiet. At Paris and Marseilles affairs are very insignificant; prices remain without change, but display a feeble tendency. German advices indicate little animation in the demand for lead. At Berlin and Cologne prices, without having materially varied, are somewhat feebly sustained, and at Hamburg there has even been a slight fall, without the attention of buyers being, however, much excited in consequence. The information received from the regulating zinc markets is not unfavourable; the anchorage, it is true, is produced, but slowly, but it has become more decided during the past week. Letters from Breslau state that producers are confidently hoping for a serious and sustained revival in affairs. The Hamburg market preserves a good tendency, and prices are fully sustained. The Paris market is quiet, but in presence of the better tone of other markets, prices have regained some firmness, rough Silesian making 20£ 12s., and zinc from other sources 20£ 8s. per ton.

A permanent exhibition of products from Algeria is at present opened at the Palace of Industry, at Paris. The collection of minerals comprised in this exhibition is of exceptional richness, and embraces specimens of iron, lead, copper, mercury, marble, onyx, stone for construction purposes, &c. Algeria contains, in fact, over the whole extent of its territory mineralogical bearings of extreme abundance. Several of these bearings are in full working; one of them, that of Mokta-el-Hadid, is among the finest workings known. Its production amounts to from 600 to 700 tons per day, or, on an average, 200,000 tons per annum; it yields an oxidized iron, almost pure, containing 3½ to 5 per cent. of gangue, and guaranteed for a return of 66 per cent.

The house of Dennin, of Anzin, has obtained an order for 10,000 tons of rails for the Paris, Lyons, and Mediterranean Railway Company, at 77 1/4s. per ton, delivered at a port in Algeria. The same company (the Paris, Lyons, and Mediterranean) has ordered from the Creusot Works 35,000 tons of rails, at 77 1/4s. per ton at the works; 20,000 tons from the same house, on the same terms, also at the works; and 10,000 tons from Anala, on the same conditions. The house of Wendel has agreed to supply the Eastern of France Railway Company with 30,000 tons of rails at 61 1/8s. per ton, to be delivered at Styring-Wendel. The Charentes Railway Company has ordered from the same house 30,000 tons of rails, at 75 1/2s. 6d. per ton, to be delivered at Angoulême, La Rochelle, and St. Savinien. Creusot has contracted to supply the Western of France Railway Company with 1000 tons of steel rails at 131 1/2s. per ton, to be delivered at Batignolles. The Marquis, Fourchambault, and Lebrun establishments have 14,000 tons of fish-plate to be delivered by the Charentes Railway Company; the contract price is 51 7/8s. 9d. per ton, delivered to be made at Angoulême, La Rochelle, and St. Savinien. These contracts, it should be remarked, were not given out during last week, but were spread over the months of June, July, and August; anyhow, they will afford a highly valuable amount of employment to the French works. It is not surprising to find that the general state of affairs has improved, and that prices are maintained with firmness.

THE MONITOR SILVER DISTRICT OF CALIFORNIA.

The last report to Congress of Commissioner Ross Browne contains information of peculiar interest to those connected with the mines of Alpine—the district in which the properties of the Imperial Silver Quarries Company, the Mount Bullion Company, and the Scottish Chief Company are situated. Alpine contains a number of small towns, of which Kongsburg, the county seat, Monitor, and Markleeville are the principal. There are three quartz mills in the county, carrying 26 stamps, and costing in the aggregate about 20,000£. Considering its small population and rugged surface, this county is well supplied with good wagon-roads, having one across the mountains, connecting the principal towns with the Big Tree road running to Stockton, and several others, built at heavy expense; one of which runs at Carson Valley, there uniting with the road to Virginia city, and also leading over the Sierra to Sacramento, via Placerville. The inhabitants of Alpine have displayed much enterprise in road building, having, for their means, expended more money and labour on these improvements than any other community in the State. The first silver-bearing lodes were discovered in this region in 1861, since which time 14 different districts have been organised within the limits of the county, in some of which a large number of lodes have been located and much exploratory work done, while in others the reverse is the case. The metalliferous veins here are usually of good size, many of them very large, being from 20 to 80 feet thick on the surface, and occasionally much larger. The vein stone consists of quartz and carbonate of lime. The country rock is composed of porphyry, granite, trap, and slate. None of the lodes carry rich ores on or near the surface, necessitating deep development before any considerable bodies of a sufficiently high grade for milling can be obtained; a circumstance that has tended greatly to retard the advancement of the mining interest in this county, capitalists overlooking the mastery character of the lodes and the unrivalled advantages for the cheap reduction of the ores enjoyed here, and investing in mines much less favourably situated, simply because they carry small quantities of rich ore in their upper portions. Left thus without aid, the miners of this county have been able, with their limited means, to develop more than a few of their claims to a productive point, although a number of years have elapsed since operations were commenced here. Another evil has been the want of the concentration of labour, their efforts having been spent in attempts at operating too great a number of lodes, thereby defeating the thorough development of any. But besides these superficial and ineffectual labours, several works looking to deep exploration have been planned, some of which, though involving heavy expenditures of labour and money, have been carried also to completion.

The aggregate amount of tunneling done in the county is very large, many

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to 70; Chontales, 2½ to 2¾; Chilverton Moor, 6½ to 6¾.

FRIDAY.—The market is moderately active. Marke Valley, East Lovell, West Seton, and Don Pedro shares in demand; East Grenville, Chilverton, and Basset shares flatter. Marke Valley, 7½ to 8; East Lovell, 7 to 7½; West Seton, 155 to 160; Don Pedro, 3½ to 3¾; East Grenville, 3½ to 3¾; Chilverton, 1¾ to 2; Basset, 60 to 65; Prince of Wales, 38s. to 40s.; Cook's Kitchen, 10½ to 11½; Great Wheat Vor, 1½ to 1½; Yudanamutna, 2 to 2¼; Chontales, 2½ to 2¾.

pears to be standing in whole ground for a great many fathoms in length, which will produce good stamping work, and likely to improve. The 70 fathom level cross-cut to drive south of the shaft, by two men, at 131. per fathom; this end is still in the greenstone, and is intermixed with muddle and spots of copper; the character of the ground in this and the 100 fm. level cross-cut is such as will lead anyone to say that when the lodes are intersected a good mine will be opened up.

due to look very well, as before reported, turning out some better quality ore. The mine, on the whole, never looked better than at present.

tones of lead. We hope by the middle of next week to be at the 20, where we think, judging from the ground driven through at the 10, that we shall find lead.

being pushed on with the utmost speed.

AUSTRALIAN MINES.

YUDANAMUTANA COPPER.—The directors have received advices from Adelaide, dated Aug. 17, and the captain reports to July 31 :—"I am pleased to say the mine is looking exceedingly well. No alteration in any of the lodes since my last report. My return of copper for the three weeks is not so large as I could wish, not owing to any falling off of the lodes, but for the following reasons :—1. In the early part of the month we holed the south end to the No. 1

AUSTRALIAN MINES.

have two men driving; the lodes appear to improve, but the ground is still hard; price 28¢. per fathom. The 63 south end is as last reported. We have been driving south from Harding's stopes, to hole to No. 3 winze, in the bottom of the 63, which we hope to do in the course of a day or two, and then down the water, which will give us a little more insight into the lode going south. In this end

a much better position for working the western ground and opening out lots of ore ground. Marke Valley shares have been firm, at 7½ to 8, ex div.; at the meeting, held on Wednesday, the accounts showed a profit of 2473l. 17s. 10d. on the quarter, and a dividend of 5s. per share (2250l.) was declared, leaving a balance to next account of 2667l. 13s. 10d. The mine never looked better.

2087, 125, 106. The mine never looked better. East Caradon, 3 to 3½; at the meeting the accounts showed a loss on the quarter of 2207, and a balance in hand of 18082, 15s. 6d. The mine is looking better; the 115, in the caunter, is worth 57, 6p. fm.; Child's lode, in the 70, is worth 187, per fathom; the 80 is worth 207, per fathom. Carn Camborne, 9s, to 11s.; at the meeting, held on Wednesday, the accounts showed a balance against the company of 807, and a call of 1s. 6d. per share made. The ground is getting easier in the shaft, and the mine looking better. Prince of Wales shares flatter, through market operations, and leave off 38s. to 40s.; no lode has been taken down this week in the bottom levels, and there is no change in the mine.

At Maes-y-Safn meeting (Oct. 1) a dividend of 5s. per share was declared; the accounts show a profit on 12 months ending July last of 6198*l.* 4*s.*; the balance of profit undivided to end of July, 1867, was 4131*l.* 11*s.*, less dividends paid (8250*l.*), leaving balance of 2079*l.* 15*s.*, out of which the dividend of 5s. per share is taken. The quantity of lead sold during the year realised 25,726*l.* 14*s.*, at an average price of 12*s.* 1*d.* less than the previous year, and this alone made a difference of 1300*l.* in the profits. Although it is stated that early in the present year a falling off took place in the best deposits of the mine, there is a large extent of untried ground east, into which the levels are being driven, and where the agents expect good discoveries will be made. The returns (120 tons a month) about meet costs. Bedford Consols, $\frac{1}{2}$ to $\frac{3}{4}$; Bedford United, 30*s.* to 35*s.*; Chiverton Moor, 6*l.* to 6*l.* Wheel Bassett, 60 to 65; at the meeting on Tuesday, the accounts showed a loss on two months' working of 1633*l.* 16*s.* 6*d.*, and a debit balance of 2450*l.* 0*s.* 11*d.*, but no call was made. The tin stock on hand (45 tons) is credited in the accounts at 2500*l.* The new stamping-engines, &c., are, on the whole, working very satisfactorily. Chontales Gold, 2*l.* to 2*l.*; Cook's Kitchen, 10*l.* to 11*l.*; Drake Walls, 9*s.* to 10*s.*; East Bassett, 9 to 10; East Carn Breca, 5*s.* to 7*s.* 6*d.* East Wheel Grenville shares have advanced to 3*l.*, and leave off 3*l.* to 3*l.*; the lode in the 110 east is worth $\frac{1}{2}$ ton per fathom. The lode in the winze below the 95 is worth $\frac{3}{4}$ tons per fathom. The winze in the 75 is worth 5 to 6 tons for the length of winze. In the 55 fm. level cross-cut another branch has been met with, worth $\frac{1}{2}$ ton per fm. East Lovell, 7 to 7*l.*; Frank Mills, 2 to 2*l.*; Frontino and Bolivia, 13*s.* to 15*s.*; Great Laxey, 17*l.* to 18; Great Wheel Vor, 12 to 13; Herodsfoot, 40 to 42; North Crofty, 25*s.* to 30*s.*; North Roskear, 11 to 12; Don Pedro, 3*l.* to 3*l.*; Providence Mines, 23 to 25. Wheel Grenville, 25*s.* to 27*s.* 6*d.*; the lode in the 100 west is 4 feet wide, and worth 15*l.* per fathom; the 90 east 8*l.*; the 66 west from 20*l.* to 25*l.* per fathom. The lode in the 66 west, from north shaft, is worth 12*l.* per fathom; the 54 west, 12*l.* per fathom; and the 42, 6*l.* per fathom. South Herodsfoot, 17*s.* 6*d.* to 22*s.* 6*d.*; Tincroft, 13*l.* to 14; West Bassett, 10*s.* to 15*s.*; West Caradon, 13*l.* to 2; West Drake Walls, 8*s.* to 9*s.*; West Prince of Wales, 7*s.* 6*d.* to 8*s.* 6*d.*; West Scton, 155 to 160; Wheel Buller, 7 to 8; Great Retallack, 2*l.* to 2*l.* North Treskerby, 5*s.* to 7*s.* 6*d.*; at the meeting the accounts showed a loss on two months of 5317*l.* 3*s.* 4*d.*, and a balance against the mine of 993*l.* 11*s.* 1*d.*, and a call of 3*s.* 4*d.* per share was made. The agents are still hopeful of success. Wheel Chiverton shares have declined to 1*l.* 12. Wheel Agar shares in request, at 20*s.* to 25*s.* Wheel Scton, 48 to 50; Wheel Uney, 2*l.* to 2*l.* Yudanamatun shares have declined to 2, 2*l.*; the report received by present mail states there is no change in any of the lodes since last report, and although the return of copper for three weeks is not so large as the last (and upon this the shares have been forced down), it is stated to be in no way attributable to any falling off in the lodes. The copper made in three weeks was 25 tons; ore raised, 113 tons; ore smelted, 213 tons; copper dispatched to Port Augusta, 23 tons 14 cwt.

There has been a fair business transacted in Mining Shares on the Stock Exchange during the week, and considerable fluctuations have taken place. Don Pedro, Rossa Grande, and Port Phillips shares have been in good demand, at advanced quotations. On the other hand, St. John del Rey, Yudanamutana, and Anglo-Brazilian shares have declined. The last return from the St. John del Rey Mines has caused much disappointment. The following are the closing prices:—St. John del Rey, 18 to 19; Don Pedro, 2½ to 2½ prem.; Anglo-Brazilian, ½ dis. to par; Pestarena, 1½ to ¾ dis.; Chontales, 2½ to 2½; Rossa Grande, 3-16ths to 5-16ths; Anglo-Italian, par to ½ prem.; United Mexican, 1½ to 2½; Frontino and Bolivia, ¾ to ¾; Port Philip, 1½ to 1½; Central American, ½ dis. to par; Sao Vicente, par to ½ prem.; General Brazilian, par to ½ prem.; Yudanamutana, 2 to 2½; Vancouver Coal, 2½ to 3 prem. Of British descriptions, Chiverton has fluctuated considerably; these shares have been 2½ to 2½, but close 1½ to 1½; Chiverton Moor, 6½ to 6½; West Chiverton, 60 to 62. The feature of the day has been the sudden demand which has sprung up for Drake Walls, at 9s. to 12s. Prince of Wales shares have been 42s., but close 35s. 6d. to 40s. 6d. East Grenville, 3½ to 3½; Wheel Grenville, 1½ to 1½; Rhosmor good, at 4½ to 5; and Glan Alun, 12s. to 13s.; these two last-named properties have assumed a position of importance in the market, being readily absorbed, in a great measure, for permanent investment.

[illegible]

IRISH MINE SHARE MARKET.—A moderate amount of business has been transacted in mining shares this week, and prices were well supported, except in Killaloe Slate Quarry shares, which in the early part receded from 18s. 6d. to 16s. 6d. The latter quotation attracted purchasers, resulting in a recovery of 1s. per share, the last sales having been effected at 17s. 6d. Mining Company of Ireland shares, which we last reported as in much request at 15*l.* 5*s.*, with sellers at 15*l.* 10*s.*, have gradually risen to the latter price, and, in fact, close at a total advance of about 7*s.* 6d. per share, they being now freely taken at 15*l.* 12*s.* 6d. for cash and account (7*l.* paid). General Mining Company for Ireland shares are offering for sale. Wicklow Copper shares have not been very firm, but there are many enquiries for them at 12*l.* 5*s.* (2*l.* 10*s.* paid), 12*l.* 7*s.* 6d. having been realised for them on Tuesday last. Connorroe shares would be bought at 4*s.*

The Connorree Mining Company held an ordinary general meeting on Monday. The directors' and secretary's reports, referring only to past affairs, were read. The present directors reminded the meeting that, as they were only 13 days in office, they were not responsible for what had occurred, and announced their determination to retire, rather than to take proceedings against the late board for their misconduct of the affairs of the company. It is probable that a special committee of shareholders will be appointed, for the purpose of taking up the matter in question.

At Redruth Ticketing, on Thursday, 1762 tons of ore were sold, realising 62907. 6s. 0d. The particulars of the sale were:—Average standard, 1037. 6s.; average produce, 6½; average price per ton, 34. 11s. 6d.; quantity of fine copper, 107 tons 7 cwt. The following are the particulars of the sales during the past month:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
Sept. 10	1155	1014 19 0	556	£3 4 0	118. 3½d.	£56 7 6
" 17	3522	104 19 0	676	3 18 0	12 4	61 11 0
" 24	2236	98 7 0	7½	4 6 6	12 0	60 2 0
Oct. 1	2535	103 2 0	64½	3 13 0	11 9	58 15 0
" 8	1762	103 6 0	68½	3 11 6	11 8½	68 12 0

Compared with last week's sale, the standard remains about stationary. Compared with the corresponding sale of last month, the advance has been in the standard 27. 15s., and in the price per ton of ore about 3s. 4d.

The Standard of Tin Ore was advanced on Oct. 5, and are now as follows:—Common, 88s.; superior common, 89s.; fine, 90s.; superior fine, 91s. Metal: Common, 98s.; refined, 101s.

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The same patent, as applied to ships, has received the approval of the Chief Engineer, Chatham Dockyard (vide Times, Aug. 13, 1868).

SOLE AGENT FOR MINERS:

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N.B.—MR. JERRAM is now visiting the different mines with working models.

Notices to Correspondents.

* Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt: it then forms an accumulating useful work of reference.

RICHARDSON'S LIFE SAVERS FOR MINES.—In your report of the Royal Polytechnic Institution, at Falmouth, you mention that I have shown "plans of tubular shaft casing, with lifting stair for mines." It should have been *Life Saver*.—H. T. RICHARDSON: Aberllynant, Bala.

SCALE FOR ADVERTISEMENTS.—To avoid the necessity of frequent application, we may state our charge for general advertisements is—for six lines and under, 4s.; per line afterwards, 8d. Average, twelve words per line.

THE MINING JOURNAL

Railway and Commercial Gazette.

LONDON, OCTOBER 10, 1868.

NORTHAMPTONSHIRE ORE AND IRON.

We are glad to find that the ironstone of Northamptonshire is being much better appreciated than it was formerly, and that the demand for it is now largely increasing, although efforts have been made by interested parties to depreciate its value. On its first introduction, some 17 or 18 years ago, it was anything but favourably thought of by ironmasters and furnacemen, and was known in many districts under the appellation of "rhubarb," which in one respect it certainly deserved, owing to its extreme fusibility. Now, however, that ironmasters are aware of its qualities, they are enabled easily to free it from its impurities, and so apportion the fluxes as to produce a very good quality of metal. That it has rapidly advanced in the estimation of consumers will be seen from the fact that whilst in 1857 the entire production was only 107,985 tons, ten years later, in 1867, it had increased to 416,765 tons, and there is now every reason to believe it will still increase at a very much greater rate. In the manufacture of iron, also, there has been a large increase, the production last year being 25,184 tons, whilst in 1857 it was only 11,500 tons. Since then the number of furnaces have been doubled at least, and during the present year the Glendon Company have two in blast, Messrs. BUTLIN a fourth nearly completed, whilst we hear of others about to be erected in other parts of the county, the site for four being marked out on a large estate near to Market Harborough. New fields of ironstone are also being opened out, and landowners who have ores on their properties have many applications just now from persons desirous of taking to the working of them. During our visit through the county, within the past few days, those facts were brought under our notice, and we were informed that many of those who were desirous of becoming lessees of tracts of ironstone were considerably annoyed at the notices which have appeared in the local papers, taken from the *Mining Journal*, as to the value of the ores. Of course, it would suit interfering purchasers to have the value of the stone depreciated as much as possible, so as to obtain it at a low price, but those gentlemen only look at one side of the question. Whilst lessening the value of the ore for their own purposes, they do not look to the fact that as five-sixths of all that is raised is sent into Derbyshire, Staffordshire, Yorkshire, Wales, &c., its consumption will be largely increased, and it will command a much higher price in the market by its actual richness in iron and its real value being made generally known. True it may be that landowners may desire a fair royalty for their ores, and they are certainly entitled to it, but then the benefit will be mutual. Coalowners, as a rule, are well acquainted with the value of their coal, and join with their lessees in doing all they can to make known its excellence. Indeed, only very recently large sums of money were expended in an elaborate series of experiments with regard to the Lancashire and Cheshire coals, with a view to their being put on the Admiralty list, which is a matter of great importance to any coal-getting district.

As it would seem, however, that the position and value of the Northamptonshire ores are not generally known, we now purpose to give a more definite notice of them than has hitherto appeared, and for most of the facts relating to which we can vouch for on the authority of Mr. W. BUTLIN who has been termed "the Father of the Iron Trade" in the county, who is the largest producer and consumer, and who is admitted to be better acquainted with the subject than probably any other man in the county. We may also state that we have visited every part of the district several times during the last three or four months—from Market Harborough to Blisworth and Gayton. Commencing from the last-named place, we found the bed of ironstone extending from there for several miles along the Midland Railway, passing in a direct line to Finedon, where there are now two furnaces in blast, to Wellingborough, where are the extensive works of the Messrs. BUTLIN, on by Castle Ashby, near to which ore is now being raised, on to the town of Northampton. A short distance from the last-named town is Duston, a hamlet, where a good deal of stone is being raised. It is found in that locality fully 16 ft. thick, and even considerably thicker on some parts of the estate of Gen. ARBUTHNOT, near to Cranford, about four miles from Kettering. In several parts of the county, however, the ore is by no means so good, in some instances not being more than 5 or 6 ft. thick; it also varies considerably in weight, according to the richness or otherwise of the stone. A cube yard of ironstone as it lies in its bed with shale and rock will weigh about 24 cwt.; but to weigh that it must be clean, entirely free from sand walls, dirt, &c. It will, therefore, be obvious that

ironstone varying so much in thickness, and containing numbers of "faults," such as walls of sand and clay, that the actual yield or weight of the stone as it lies cannot be accurately determined. Near to the Midland Station, at Wellingborough, we were informed by Mr. W. BUTLIN that one field, of nine acres, produced 93,286 tons (nearly 11,000 tons per acre), the thickness of the bed being very irregular. It, however, averaged about 12 ft., being 6 ft. of solid rock, whilst the remainder contained a good deal of "siftings," but some part of the same field yielded over 12,000 tons to the acre. These facts, taken on the spot, at the largest concern in the county, will, so far as the ironstone is concerned, be conclusive as to its value in some districts, and the production per acre as well.

With regard to the percentage of iron to be found in the ore, the results given at the furnaces at Irthlingborough and Wellingborough, belonging to the Messrs. BUTLIN, show that it is larger than has been generally supposed. The following results were given whilst we were visiting the works on two different occasions. The first which we give was from ore taken from the least productive part of the field (for in some parts the ore was so rich that it could not contain less than 50 per cent. of iron), and was as follows:—

Coal in furnace	.....Tons 271 0 2	Ironstone	.....Tons 513 0 0
Stoves and boilers (Cobbles)	.....73 10 0	Limestone	.....181 0 0
Coke	.....25 12 0	IRON MADE	.....194 10 0

There was required to per ton of iron:—

Coal	.....Tons 1-79	Ironstone	.....Tons 2-63
Coke	.....0-13	Limestone	.....0-90

Percentage of iron from stone.....37-91

From another part of the same ironstone field still more favourable results were obtained, as will be seen from the following statement of the yield at the Irthlingborough furnace on the occasion of our late visit:—

Coal	.....Tons 193 0 0	Limestone	.....Tons 100 10 0
Coke	.....43 2 0	IRON MADE (long weight)	.....141 10 0
Ironstone	.....510 0 0		

To per ton of iron made:—

Coal	.....Tons 1-35	Ironstone	.....Tons 2-4
Coke	.....0-23	Limestone	.....0-71

Percentage of iron from stone.....44-28

At Stanton, in Derbyshire, a good deal of the Northamptonshire stone is used, and Mr. CROMPTON, we have been informed, uses nearly two-thirds of that from Wellingborough with little more than a third of the local clay ore.

It will thus be seen from the foregoing statement that the ore of Northamptonshire is of a very much richer quality than it has generally been supposed to be; and we are, of course, by no means displeased at hearing that the notices we have given from time to time as to its value, from our own personal enquiry and inspection, have led to its becoming more generally appreciated by our ironmasters.

We are also glad to find that new works are being raised at Wellingborough by Staffordshire capitalists, and believe that the district will ultimately become what has been predicted of it—one of the great centres of the iron trade of the country.

BOILERS AT IRON WORKS.

The opinions we expressed last week upon the very disastrous accident which the Moxley Steel and Iron Works, through which, up to this time, 12 workpeople have died, are fully confirmed by the testimony of the scientific witnesses called at the inquests, and also by the verdicts adopted by the juries. The evidence showed that an extensive seam-rip must have existed near to the point at which the chief heat impinged upon the plates. The heat at the time of the explosion was equal to that of five puddling-furnaces, inasmuch as one of the four furnaces which worked into the boiler-flue was being used at the time as a ball-furnace. Several patches on the boiler near this place showed that similar seam rips had been before seen and repaired. The rip had most likely been caused by the straining of the old work to meet the new plates put in during some former repairs, although it would not show itself until after the boiler had again worked. Before the explosion the rip must have been leaking, and it ought to have been observed by anyone making an examination of the flues. The large number of rivet-holes which had evidently become cracked before the explosion happened was, no doubt, gradually brought about until the boiler had become reduced to the bursting point. Then the rent quickly extended downwards, and tore the angle-iron at the bottom, which had been weakened by having the rivets removed several times during the process of re-bottoming. Hence it came about that the boiler was torn up into as many as 10 fragments. Mr. E. B. MARTEN, the inspector-in-chief of the Midland Steam-Boiler Inspection and Assurance Company, who was the principal scientific witness called in by each of the coroners, concluded his report as follows:—

"There must have been considerable leaking in the bottom of the boiler before explosion, as there were many plates cracked from the edges to the rivet-holes, and also indications of much water from the leaks passing down the centre flue. The usual working pressure must have been higher than was known to those in charge of the boiler, as the steam-gauge was out of repair, and quite useless; and even if it had been good its position, so far from the boiler, would cause it to register considerably less pressure than that in the boiler itself, which was, no doubt, little short of 40 lbs. The boiler had worked for many years, and had been greatly deteriorated by very frequent repairs; and it was over-taxed by such a very large amount of heat from the furnaces, and by working at a pressure which there was no means of correctly gauging."

If he had examined the boiler himself when the engineers examined it, Mr. MARTEN thought that he should have discovered the seam rip. We have no doubt of it whatever, and the moral of this accident lies in the fact that he would have discovered it. It is a moral which cannot be too often urged upon the attention of all proprietors of colliery and iron works boilers. Both the engineers who had the care of the boiler, and one of whom is amongst the killed, were in the boiler during the early part of the day upon which it exploded, and when they left it they believed it to be in a safe condition. The defect was not likely to have been observed from within, but evidences of it could have been seen from without. If, however, the engineers had observed traces of lurking danger, it is very doubtful if they would have attached to them the importance they deserved. But Mr. MARTEN went further than this. He said that even if he had discovered a leakage which was going on he might have found difficulty, speaking from his observation generally, in convincing the engineers of the grave significance of the defect.

Each jury recorded a verdict of "Accidental Death," but they both accompanied their verdict with a formal expression of opinion. One jury said:—

"We are of opinion that if a proper inspection of the boiler had taken place the accident would not have happened; and we are further of opinion that a boiler of the same make as that which exploded is not safe with the amount of heat which was worked into it, and that steam gauges should be used, and a proper inspection of the boiler be made by a competent person."

The other jury remarked:—

"In returning a verdict of 'Accidental Death,' we wish to suggest to the owners of boilers generally that repeated examinations of boilers should be made from time to time by a competent person, other than the engineer in charge as working engineer."

Since the Moxley accident has occurred another furnace boiler at an iron works has exploded. This accident happened on Friday, at the Elsecar Works of Messrs. DAVES, about five miles from Barnsley. Happily, however, the results have not been so serious a character as those which attended the explosion in South Staffordshire; two men have, however, been killed, and others seriously injured. Nor was the force of the explosion so great at Elsecar as at Moxley. Whilst in the latter case, as we have shown, the boiler was riven into ten pieces, all of which were carried a great distance from the original site—in the former a piece about 3 feet 6 inches square had been torn off on one side from the rivets, and on the other from the solid plate. The bulk of the boiler was driven away a distance of some 20 yards.

From the information we possess we have reason to believe that this boiler also has been weakened by overheating, for the piece described has gone out of the side joint, near one of the side tubes, through which the flame passed from the outside to the central tube. In this case, however, the boiler would seem to have been worked by two furnaces only, and to have been of smaller, and therefore safer, dimensions than that at Moxley, for whereas the Moxley boiler was 22 ft. high and 10 ft. 6 in. diameter, this was 21 ft. high by 7 feet diameter. Both were made of 7-16ths in. iron. The inquest has not yet terminated in the Elsecar case, therefore we refrain from saying more upon the subject whilst the accident is under judicial enquiry. The close of the inquest will afford us an opportunity for recurring to this matter. We will then show what has been recently done at some iron works to reduce the liability to ac-

cident which the use of these furnace boilers has hitherto displayed. Meanwhile we are constrained to again urge upon those coal and iron masters who have not yet, by placing their boilers under inspection, eased themselves of a large amount of uncomfortable responsibility, the fact that newspapers, which are supposed to display much alertness in matters affecting the public safety, have begun to take up the question in a spirit which bodes no very tender treatment of all cases which may hereafter occur in which such "opinions" are justified as those expressed by the juries in the Moxley case. One of these papers writes:—

"If 'proper inspection' of the boiler would have prevented the explosion, it is trifling with a serious responsibility to say that the explosion itself was accidental. No one supposes that Mr. WELLS intended to blow up his own works, and kill a dozen of his workmen, but he should be held liable for the disastrous consequences, in the same sense as a railway company for a collision on its own line. And if employers only understood their duties more clearly there would be far fewer of these alarming 'accidents' to report."

ARBITRATION COURTS.

Of the many questions which have engaged the attention of the public mind, there is none more interesting or important to the great manufacturing and commercial communities than that of Arbitration Courts. For many years the popular voice had been directed in an altogether opposite course to that which now seems to animate it. Formerly the cry of the working classes was "agitate," a cry which plainly bespoke that something was supposed to be radically wrong in the existence of the state of things as between master and man, and a deep and grievous evil to be removed. This cry of "agitate" grated upon the ears of employers; its sound was harsh and unpleasant; and so long as it continued, so long the masters properly held aloof, for no wrong, or supposed wrong, can possibly be removed whilst the two strata of society are in a state of agitation and strife. Within the past year or two, however, "a change has come o'er the spirit" of the working classes, one which augurs well for the future, and one which cannot fail to commend itself to the sympathies of the public generally. For the harsh and unpleasant cry of "agitate," there has now been substituted the grateful and conciliatory term "arbitrate," and already has this cry enlisted under its peaceful banner many large employers of labour and great bodies of working men. We have ever maintained that the interests of the employers and the employed should be identical—that is, that each should take a deep interest in the welfare of the other; and in proportion to a mutual understanding and identity of interests existing between master and man, so will the welfare of each be promoted. The employer who takes no deeper interest in the well-being of his workpeople than how much work it is possible for him to get out of them for their weekly wage, has, in nine cases out of ten, simply a set of machines in motion, which execute a certain amount of work within a given time, but which (no matter what urgency exists) will not strike a single additional blow with a hammer, or cut an ounce more coal. But one of the chief, and let us add, one of the most gratifying characteristics of the large manufacturers and colliery proprietors in this kingdom is the great anxiety which they ever manifest in the welfare—the temporal and moral welfare—of those dependent upon them. To such an extent has this feeling now grown, that no large iron works, no large smelting establishment, no extensive colliery undertaking, is considered complete until it has adjacent, and as an integral part of the whole, not only workmen's cottages, but churches, chapels, schools, reading-rooms, &c., the whole object and tendency of which is the elevation of the working classes, and which bespeak in loud and emphatic voice the fact that employers gladly recognise the truth of the assertion that position and wealth have their responsibilities and duties as well as their advantages and honours.

The question of Arbitration Courts, or courts for the settlement of disputes between employers and workmen, has forced itself prominently before the public mind during the past few months, and it is a matter in which all classes appear to take considerable interest, and would gladly see established. Fortunately, there is not at the present moment any great question in dispute, masters and men being for the most part upon very amicable terms. In nine cases out of ten the only question which causes any open rupture between the employer and the employed is that of wages, and if any means can be adopted by which such questions could be satisfactorily established it would be a great boon to both parties. We need not now refer to the ruinous and protracted "strikes" which have often taken place in our great iron and coal producing districts, nor need we dilate at any length upon the grievous consequences which have ensued from furnaces being blown out, collieries stagnant, and the workmen dispersed over the country, or who have left the land of their birth for distant colonies. The evil consequences of strikes are too well known to require enumeration, and in many parts of the kingdom they have left indelible impressions. If, therefore, any measure could for the future prevent such serious interruptions to trade and commerce, we are sure it would be hailed with much satisfaction by all large employers of labour, for these, after all, have been, and always will be, the greatest sufferers by the disastrous "strikes" which take place. But whilst all would, apparently, hail the establishment of such Courts of Arbitration, there is, perhaps, no other question beset with so many difficulties, or surrounded with so many obstacles; and these difficulties chiefly arise from the fact that in attempting a solution of any question arising out of wages the undeniable rights and freedom of men are attempted to be restrained and interfered with. The law says, and common sense dictates, that every man has the right to sell his labour in the best market; it is the only birthright which the working man has, and you can no more compel a man to work for a guinea per week than you can compel a colliery proprietor to sell a ton of coal for 5s., or a ton of iron for 20s. Neither, on the other hand, can you compel an employer to pay his workmen a guinea per week when he feels he can only afford 15s.; neither has any third party the right to step in between these parties in the settlement of their disputes; nor do we think the country generally would quietly submit to any such arbitrary or dictatorial interference as would exist that such disputes should be submitted to Courts of Arbitration.

But Courts of Arbitration naturally imply Courts of Conciliation. Such courts, once established and sanctioned by universal approbation, would be resorted to in cases of dispute. Each party would willingly concede a little, and each would be bound by the decision. Such are the arguments in favour of the present movement; and if such a broad basis were agreed on, then there would be some fair chance of success. But here, again, difficulties arise. We very much question whether any ironmaster or colliery proprietor would submit his books to the inspection of the Court in order to fix what should be the rate of wages. Such would be more inquisitorial than the income tax scrutiny, and far more unwelcome to the masters. But without some such enquiry no decision could be arrived at upon the point at issue. That is, therefore, the serious difficulty to be contended with. Again, in the case of any open rupture upon the question of wages, neither the master nor the working man has violated the law, and, therefore, the law has no right to step in and interfere, and without the law there is no obligation on the part of either side to submit to or abide by the decision of the Court of Arbitration. Whilst, therefore, we see great difficulties in the establishment of these Courts of Arbitration, inasmuch as they cannot be hedged round with the authority of the law, we are very far from saying that the object aimed at cannot be gained. Once the public mind set steadfastly upon the realisation of any given object, and success is almost certain. In the multitude of councillors there is wisdom; and in the discussions which are now taking place in various parts of the kingdom upon this very important question, and the evident desire to see questions affecting labour amicably settled, a considerable step in advance has been taken. We are bold enough, however, to make the assertion that before Courts of Arbitration can be established securely, and have the confidence and support of the great employers of labour, Trade Union Societies, as such, must be abolished throughout the length and breadth of the land. Such societies have always stood in the way of an amicable settlement of disputes between masters and men, inasmuch as the employer has not only to meet the wishes and views of his own men, but in a great measure to conform to the arbitrary rules and requirements of the society; and in many instances, when everything has been conceded on the part of the employer asked for by his men, they have been compelled, *notens volens*, to stand out still, in order to satisfy some tyrannical caprice on the part of the council or executive of "the society."

We feel confident, therefore, that before Arbitration Courts can gain the universal acceptance and approbation of employers all "Trades Union Societies" must be abolished, either by legislative enactment or mutual free will. There must be no more BROADHEAD interference, dictation, or threats. Every employer must have perfect free scope and action in dealing with his own men. There must be no outside pressure. The special circumstances which regulate any particular works or colliery must be regarded more than the general outside aspect of the question. A spirit of mutual concession and of confidence must be encouraged—identity of interests sought to be promoted; and, in proportion as these principles are acted upon and regulated the duties of both the employers and employed, so will the success of Arbitration Courts be established. So long, on the other hand, as Trade Unions are permitted to regulate the rate of wages over the whole country, dictating terms without regard to any special circumstances, so long will the great majority of employers stand aloof, and refuse to be bound by such rules and regulations. In the meantime, we are glad to see the question taken up by all classes, and the evident interest which it creates in the minds of all. It is an omen of good. No harm is ever done by open and candid discussion; but if the working classes really desire all future questions of difference which may arise between them and their employers amicably settled by Courts of Arbitration, rather than by resorting to the suicidal "strike," then let them give a practical proof of such willingness by abolishing, at once and for ever, all "Trades Unions."

STEEL WIRE ROPES IN COLLIERIES.

The introduction of what is termed the "tail rope" into the South Yorkshire coal district was duly inaugurated on Thursday last by the proprietors of the Darfield Main Colliery—one of the largest in the county—inviting a large party to dinner at Mr. LONGDEN'S Hotel, Low Valley, about five miles from Barnsley. Between 100 and 200 persons sat down—amongst those present being Mr. HUNTRESS, the manager; Mr. SMITH, viewer, Monkwearmouth; Dr. MURE, Wombwell; Mr. MINTO, the Oaks Colliery; Mr. J. BEAUMONT, Chapel-town; Mr. WILSON, &c. Mr. HUNTRESS occupied the chair, and on the removal of the cloth Mr. WILSON gave some interesting details relative to the "tail rope," its mode of working, and the machinery employed, which, as this is the first rope of the kind laid in the district, were listened to with great attention. He said the rope would effect a great saving in horse-flesh, whilst the work would be done quicker and better. He also stated that a new plane had just been completed, after being in hand about two years. With regard to the working of the new ropes, he said the engine by which they were worked was of 160-horse power, with 18-in. cylinders, the steam being supplied by two boilers, one 18 ft. by 5 ft., and the other 18 ft. by 4 ft., the pressure being about 40 lbs. to the square inch. There were three drums, 3 ft. 6 in. each, connected with the engine, and provision made for a fourth, in the event of its being required. The engine, which is at present working into seven "pass-byes," does the work which would require 55 horses, and, of course, is capable of doing three times as much. The north-east side of the colliery is worked by a steel rope, 1000 yards long. The length of the bank is 830 yards, and the train which goes along it consists of 20 corves, containing 10 cwt. of coal, the entire weight being 14 tons. The time which the train takes in running is 4½ minutes, the change occupying about 13 seconds, and the coming out 5 minutes. The set in going down the "jenny" has to go round three corves, at an angle of from 47° to 48°, and at a dip of 1 in 12. On the south side of the colliery the plane is worked by the main rope to haul the full corves out, which number 40 each train from the first landing—a distance of 800 yards. The time it takes in coming out with the "tail rope" is 4 minutes, and the same time in returning—the set on passing having to go round two corves, one at an angle of 10°, and the other at an angle of 24°. The next station is 1070 yards long, and has three corves, which have to be passed at an angle of from 24° to 31°. The time occupied in going in is 8 minutes, and 5½ minutes in returning. The entire quantity of wire-rope used is upwards of 4200 yards.

Mr. WILSON said the ropes worked admirably, and he had very little doubt when they were seen in operation at Darfield Main that they would come into very general use, not only in the South Yorkshire coal field, but in others, for their economy, simplicity, and certainty of working would commend them to the notice of colliery viewers and proprietors. With regard to the new engine-plane, which had just been completed after the surmounting of many engineering difficulties, he was glad to say that the work in connection with it had been performed in a highly satisfactory manner, and, although it had occupied two years, it was gratifying to state that it had been completed without any accident whatever. Much of the success attending the work belonged to Mr. HUNTRESS and the proprietors, who spared no expense in ensuring the comfort of their workpeople.

Mr. MINTO (Oaks Colliery) said he had that day been down the Darfield Main Colliery, and had inspected the new engine-plane and the "tail rope," and, whilst the former had been ably carried out, the rope had been a very great success. He had no hesitation in saying that there were hundreds and thousands of horses working in collieries, even in their own county, that might easily be dispensed with, and he had no doubt whatever but that the endless steel and "tail" ropes would ultimately come into general use, as nothing could be more satisfactory than the manner in which they worked.

Mr. HUNTRESS, in acknowledging the toast of his health, remarked that he came to Darfield after staking his all in a new colliery undertaking, and he was glad to say that the success of Deneby Main had placed him in a position of comparative independence. Starting in life a clerk in a banking establishment, he came into Yorkshire with a railway contractor, and left when in receipt of 600*l.* a-year. He then went to the Messrs. CHARLESWORTH, the extensive colliery owners, but left in consequence of their refusing to advance his salary after he had increased the working of their pits from three to five and six days a-week when trade was far from good. He was then connected with the Goole and Wakefield Railway during its construction, and then came to Darfield Main. He mentioned these facts to show to those present that by perseverance and a determination to rise in the social scale men would generally improve their position, so that much depended on themselves, and he trusted that many of those present would take advantage of the opportunities now within their reach to raise themselves in the social scale. They had before them notable examples worthy of being followed.

Mr. J. BEAUMONT, as a practical man, fully endorsed what had been said by Mr. MINTO and Mr. WILSON as to the value of the endless and the "tail" ropes. They were, in every respect, first-class, and their general adoption was a mere question of time.

The CHAIRMAN having given the health of Mr. SMITH, of Monkwearmouth, that gentleman, in replying, said that Mr. WILSON and himself had been acquainted for nearly half a century. Indeed, he came to him when a boy as a trammer, when he noticed that he was endowed with energy and perseverance. He rapidly rose, and from a trammer he became a deputy, then an overman and underviewer, up to the position he now so honourably and creditably filled as resident viewer of Darfield Main Colliery. To him (Mr. SMITH) it was gratifying to find that he had been the means of bringing out a man who had the capacity to fill the highest situation in connection with our collieries. Mr. WILSON and himself had had many difficulties to contend with, more especially at Castle Eden, where there was a strike. He was glad, however, to say that disputes between masters and men, leading to strikes, had nearly passed away. In conclusion, Mr. SMITH remarked that Mr. WILSON, after a good deal of experience at Thornley, near Wakefield, and other places, came to the place where they were then celebrating the introduction of the "tail rope," and he hoped he would long be spared to enjoy, as he did, the confidence of his employers and the men under him, and that they would meet him on many similar occasions.

The CHAIRMAN, in flattering terms, proposed the health of Mr. WILSON, which was warmly received.

Mr. WILSON, in acknowledging the toast, said he was glad to see so large a gathering on the occasion, more especially as such meetings were not of frequent occurrence. The opening of the new plane and the introduction of the "tail rope" had been attended with great success, no expense having been spared in effecting the desired objects. When he first became connected with Darfield Main there were many difficulties he had to contend with. The ventilation was

not the best that could be desired, the coal was not easy to get, the men were much opposed to him, and the only support he received was from Mr. HUNTRESS and the proprietors. Since then, however, all had been changed, and the men now did all that was required of them cheerfully. He was glad to say that since he had resided in the district it had greatly improved, morally and socially, and he believed it would continue to do so. (Cheers.)

Dr. MURE, in replying to the toast of "The Strangers," remarked that he was very much pleased to notice the good-feeling which existed between Mr. WILSON and his men, so different to what it was when he (Dr. MURE) first came into the district. The present state of things was brought about, he believed, by the desire of Mr. WILSON to improve the position of his men, towards which he had done much by the introduction of a night-school and reading-room.

AN IRON AND STEEL INSTITUTE FOR GREAT BRITAIN.

We congratulate the ironmasters of Great Britain upon their prospects of at length being able to discuss questions relating to the making of iron upon the most scientific and economical principle in that open and generous manner, which cannot but be productive of the utmost benefit to all classes concerned. On Thursday, during the Quarterly Meeting in Birmingham, a meeting at which all the different iron-making districts in the United Kingdom, save Scotland, were represented, was held to discuss the proposal of Mr. JONES, secretary of the North of England Iron Trade, for the establishment of an Iron and Steel Institute for Great Britain. Mr. MENELAUS presided, and it was resolved, first, "That in the opinion of this meeting of representatives of the various iron-making districts of Great Britain it is desirable to take steps for the establishment of an Iron and Steel Institute, for the discussion of practical and scientific questions connected with the manufacture of iron and steel;" and, second, "That it is desirable to base the resolutions of the proposed Institute upon the general principles adopted by the Civil and Mechanical Engineers and kindred societies, rigidly excluding all questions connected with wages and trade regulations." Additions were made to the Provisional Committee, and it was resolved that the representatives should canvass the matter in their several districts, and report to another meeting, to be held in November. The subscriptions, it was arranged, should not exceed three guineas. The representative of the Scotch trade was in the hall, but failed to be present at the meeting, because of a misapprehension of the hour. Mr. JONES was appointed secretary to the Provisional Committee *pro tem.*

LIQUID FUEL.

So many unsuccessful attempts have been made to employ liquid fuel for the generation of steam that many were beginning to entertain serious doubts as to the practicability of doing so; the trial, however, of DORSETT'S system, on Wednesday, was well calculated to remove that impression. The trial was made alongside the wharf of the Patent Steam Fuel Company, Deptford, on board the Retriever screw steamship, some trifling alteration in the furnace arrangements having been made to permit of the substitution of liquid fuel for coal. Compared with the arrangements previously suggested the present certainly appears to offer very many and important advantages—it is simple, clean, and capable of regulation to the greatest nicety. The failure of previous efforts may, probably, be traced to the several inventors having endeavoured to burn the liquid itself, and thus rendered the use of complicated and unmanageable contrivances within the furnace a matter of absolute necessity. To avoid this Messrs. DORSETT and BLYTHE have adopted the happy idea of vaporising the liquid in an independent boiler, and then generating the steam by gas heat, without in any way interfering with the general arrangements of the engine-room; indeed, it would not be difficult to construct a boiler furnace which could be used at pleasure for burning either coal or liquid fuel, according as the one or the other might be available.

The engine of the Retriever is of 90 horse-power, and it was estimated on Wednesday (they were then driving at full speed) that they were consuming about 20 gallons of creosote per hour, the cost of which was stated to be no more than 1*d.* per gallon, whilst it is obtainable in almost unlimited quantity. The hydrocarbon vapour is generated in a couple of small vertical boilers, heated by a single pipe by the gas heat of the vapour itself, this pipe being simply passed from the portion of the boiler above the level of the liquid into the fire-hole, where the vapour is permitted to escape through a series of perforations. All that is required is a handful of coal to start the evaporation in the first instance. The supply of vapour through this pipe is so regulated as to keep up a constant pressure of about 40 lbs. to the inch, the liquid to be evaporated being supplied by an ordinary feed-pump, precisely as water is supplied to the steam-boiler. In practice these vaporising boilers would be made to occupy either the position of the present coal bunkers (but would, of course, occupy considerably less space), or a place beside the ordinary furnaces, although for the experimental trial they have been placed on deck; these, however, are mere details, the arrangement of which would not offer any practical difficulty, and would be capable of variation, according to the varying circumstances and precise requirements of each particular case.

The hydrocarbon vapour being once generated, its application beneath the steam boiler is comparatively easy, and from the appearance of the furnace arrangements in the Retriever it is evident that the adaptation of the system to existing boilers would present no practical difficulty. The furnace-bars have simply been removed, and replaced by perforated bricks, above which the coil to convey the vapour is placed. This coil furnishes four jets, and there are two other jets in the return-box; there are, consequently, 18 jets constantly in use, the boiler being an ordinary ship's boiler, with four furnaces. Some trifling modification has likewise been made in the furnace doors, but the alteration is so small that upon entering the boiler-room one would only know from the extreme cleanliness that fuel other than coal was being used. On Wednesday the hydrocarbon vapour was alone used beneath the furnace, but the inventors consider that, if it were preferred, no difficulty would arise from the use of the hydrocarbon vapour and superheated steam in combination. A public trial of the invention will take place on Monday, when the Retriever will make a trip to the Nore and back, propelled only with liquid fuel, and the result will, doubtless, be the admission by those who witness the experiment that the difficulties which have hitherto prevented the general use of liquid fuel have been removed.

COAL BASIN OF ASIA MINOR.—Mr. HYDE CLARKE has received some further information as to the northern coal fields in the Asia Minor, or Smyrna coal and iron basin, since reading his paper at the British Association. Mr. C. E. AUSTEN, C.E., the chief engineer of the Smyrna and Cassaba Railway, took charge of an investigation on account of that company into the coal deposits near Allah Sheher, and discovered a very valuable and thick seam. He was, unfortunately, attacked by the pernicious fever now ravaging that country, and brought into Smyrna in a most precarious state, in which he lay at the last advices. The Asia Minor Cotton Company have employed Mr. J. W. STEVENS, an engineer who has devoted considerable attention to the coal deposits in the Mæander and Hermus districts, to examine the coal they are working for their cotton-growing establishment near Keurk Aghaj. We understand Mr. STEVENS is of opinion that the formation is lignitic, but there is reason to believe that at the lowest it is a lignitic coal, if not a true coal of the higher formations. The coal formation is found about 1500 ft. above the level of the sea in the mountains, and they are carrying the coal with a troop of donkeys. Mr. STEVENS recommends a tramway. Through bad arrangements the company is paying a very high tribute on the coal. The downward journey to the Keurk Aghaj is about three hours, or probably six miles. Mr. STEVENS has ascertained the existence of an abundance of coal.

THE EXPORT COAL TRADE.—The exports of coal from the United Kingdom in August amounted to 1,058,952 tons, as compared with 1,026,059 tons in August, 1867, and 1,077,309 tons in August, 1866. The exports of coal to France appear to be still declining, but they increased in August to Russia, Sweden, Denmark, Prussia, Spain,

Italy, the United States, and Brazil. In the eight months ending Aug. 31 this year the quantity of coal exported from the United Kingdom was 7,302,983 tons, as compared with 6,715,439 tons in the corresponding period of 1867, and 6,690,349 tons in the corresponding period of 1866. In these totals the exports to France figured for 1,281,382 tons, against 1,395,992 tons, and 1,242,493 tons in the corresponding periods of 1867 and 1866 respectively. Our exports of coal declined also in the first eight months of this year to Holland, Spain, the United States, and British India, but they increased more or less to Russia, Sweden, Denmark, Prussia, the Hanse Towns, Italy, and Brazil. The value of the coal exported from the United Kingdom in August was 513,374*l.*, as compared with 528,046*l.* in August, 1867, and 542,238*l.* in Aug., 1866; and in the eight months ending Aug. 31 this year 3,610,807*l.*, as compared with 3,469,675*l.* in the corresponding period of 1867, and 3,393,655*l.* in the corresponding period of 1866.

MINING, METALS, AND MINERALS—PATENT MATTERS.

BY MICHAEL HENRY,

Patent Agent and Adviser, Memb. Soc. Arts, Assoc. Soc. Eng.

Mr. D. Y. STEWART, of Glasgow, has specified a patent relating to the manufacture of cast-iron pipes and similar articles, and in the moulds and arrangement of apparatus connected therewith. Hitherto in making cast-iron articles, such as may be treated according to this invention—those for which the outside moulds are usually made in two halves—it has been customary to make and dry the cores apart from the moulds or half moulds for shaping the outsides of the articles; to carry these moulds from the place where they are rammed up to the stove to be dried, to take them out of the stoves when dried, to adjust the cores inside them (which in some cases involves the opening and re-closing of them), and finally to incline them or set them on and for casting. Now, according to this invention, the cores made and more or less dried apart are at once adjusted in the undried moulds, whilst the latter, with the cores in them, are placed in the stoves in the inclined or vertical positions in which they are to receive the melted metal, the metal being run into them in the stoves as soon as convenient after they are sufficiently dried.

Mr. A. McDUGALL (McDougall Brothers, of Manchester and London) has obtained a patent for apparatus for burning, calcining, or roasting sulphur ores and other materials. This invention relates to a construction of apparatus for effecting the burning, calcining, or roasting of ores and other materials containing sulphur. The apparatus is constructed of a circular form, and consists of a circular horizontal floor of brick, tiles, fire-clay, or metal, covered with a flat or other roof, also constructed of similar materials. The floor of this combustion chamber may be heated from below by means of flues. A feeding hopper or spout passes through the roof at or near the centre thereof. A central vertical shaft, driven by motive-power, carries at its lower extremity cross-bars or arms, extending nearly the whole of the diameter of the floor. To these cross-bars or arms a number of plates, placed vertically or otherwise, are attached, so as to form a rake or agitator, and are so fixed that when the shaft revolves the cross-bars or arms are carried round with it, and the materials being operated upon are made to pass from the centre to the circumference of the floor, where they are allowed to pass out of the calciner by means of tubes or outlets. The central vertical shaft transmits motion to a second vertical shaft, which carries a number of revolving tappets, or short projecting arms, for imparting a vibratory or shaking motion to the feeding hopper or spout, or a revolving spiral worm may be placed in the spout, so as to act as a feeder to the calciner. The vertical shaft may be made adjustable, so as to bring the rake or agitator to any desired distance from the floor in the lower portion; and, if necessary, in other portions of the apparatus suitable arrangements may be made for the admission of atmospheric air, and for allowing the gaseous products to pass off.

Mr. J. H. JOHNSON, of Lincoln's Inn-fields, has also obtained a patent for apparatus for melting and heating metals and other substances, communicated to him from abroad by Adolphe Perrot, of Paris, in the empire of France. This apparatus consists of two parts—first, the furnace proper; second, the combustion apparatus or burner, which may also be applied to heating in general. The principal advantages of these apparatus are—first, the highest temperature may be obtained without the use of blast-engines or compressed air; for melting gold, copper, and white or grey cast-iron a draught obtained by a flue-pipe of from 6 to 9 feet in height is quite sufficient, thus admitting of the erection of the melting apparatus on the upper floors of ordinary houses, without regard to atmospheric conditions; second, the use of gas at the ordinary pressure adapted for illumination; third, coal, and consequently cinders, are dispensed with; fourth, the whole of the metal can be saved in the case of the fracture of the crucible; fifth, the cast-iron may be withdrawn without extinguishing the fire; sixth, facility is afforded for the regulation of the temperature, and for maintaining it fixed for any length of time, by simply adjusting or cutting off the supply of gas to the apparatus as may be required; seventh, no attention or feeding are requisite during melting; eighth, the crucibles not being in contact with coal or cinders wear only from the interior to the exterior by the reagents, and are, consequently, much more durable; ninth, considerable saving in fuel is effected, the whole of the heat being in the centre of the furnace itself, and the time required to make the casting is greatly reduced.

REPORT FROM SCOTLAND.

OCT. 7.—The Market for Pig-Iron, on its opening, declined 4*d.* per ton, there being a number of weak holders anxious to realise, and about 10,000 tons changed hands; but towards the close prices were a shade firmer. Yesterday the market was better, but with few transactions—53*s.* 4*d.* cash having been paid, and 53*s.* 6*d.* a month. Today lower prices were accepted—opening at 53*s.* 1*d.*, they fell to 52*s.* 10*d.* cash, closing buyers, sellers holding for 53*s.* cash. Gartsherrie, 58*s.*; Coltness, 59*s.*; Summerlee, 57*s.*; Calder, 56*s.*; Langloan, 54*s.* 6*d.* Tomorrow is a holiday, on account of the Prince of Wales laying the corner-stone of our new University. The exports are in favour of higher prices, having reached this week 12,020 tons, against 10,325 tons same week last year. During last month the stock in store has increased fully 9000 tons, and up till date there has been a decrease on the year of 37,800 tons, but the imports from Middlesbrough more than equal the decrease. At Summerlee Iron Works the process of heating the furnaces by gas has been extended to a second one, and it is intended to apply it also to the boilers, on account of its success. The demand for finished iron keeps makers busy, at the improvement of 2*s.* 6*d.* a ton, noticed a few weeks ago, for second-class brands; first makers still quote 7*l.* per ton. Shipbuilding iron is quieter, but as the Messrs. Napier have entered into a contract to build the Hotspur for the Admiralty, this will aid the demand, as she is to be covered with plates 11 inches thick, and is to have a total weight of 1000 tons. The price is said to be 40*l.* per ton dead weight, or about 45*l.* 10*s.* b.m. Coals are improving in demand, and prices are creeping up, but at a slow pace. The foreign and coastwise shipments for the week reached the large total of 42,410 tons, against only 31,335 tons in the corresponding week of 1867. Conferences are being held by the miners, to gain the advance noticed last week of 6*d.* a day, but there is no likelihood of their getting it for a few weeks yet.

An important mining case was brought before Sheriff Veitch, at Hamilton, on Saturday, at the instance of the Procurator Fiscal. The prosecution was raised against Messrs. Merry, Robson, and Cunningham, for not providing sufficient ventilation in their pit at Haughhead, by which two persons were burned through an explosion of fire-damp, on May 27 last. Evidence at considerable length was gone into, including that of the Inspector for the district. The Sheriff reserved his opinion on an "ingenious" point raised by counsel till Friday, but indicated, at the same time, that he considered the explosion was the fault of some one, and that penalties had been incurred.

Shipbuilding on the Clyde, though quieter, is busy for the season of the year, and occasional launches show what is being done. Messrs. W. Denny Brothers, Dumbarton, have just floated a fine screw, of 300 tons burthen, for the Peninsular and Oriental Company, named the Decatur, of 103-horse power. Messrs. Williamson, Milligan, and Co., Liverpool, have had a splendid iron ship launched for their East India line, of about 1400 tons, named the Ivanhoe. Several other vessels have been launched during the week.

Attempts are still being made to get some one to supplant Mr. J. Merry, M.P., for the Falkirk Burghs. No one of any weight has yet been brought forward, and it is expected that Mr. Merry will carry the day. There is a dash

of bonhomie about the hon. member, which has won him not a few friends; and then, there is no shuffling nor evasion about him. They may get another member, but will they get a better for the burghs?

REPORT FROM NORTHUMBERLAND AND DURHAM.

OCT. 8.—On the whole, the Coal Trade continues dull, with very little spirit in it indeed, although the iron and other staple trades are held to be slowly improving. Large heaps of coal are still to be found at many of the works, the quantity, indeed, accumulated in some cases is quite unprecedented. On the Wear some of the collieries have only worked in some cases (extreme cases certainly) three days per fortnight, and some of the people have been reduced to the sad necessity of making application to the parochial authorities.

A public meeting of schoolmasters was held on Saturday, in the Temperance Hall, Stockton, on the subject of scientific education. In the absence of Mr. Samuelson, M.P., the chair was occupied by Mr. Whitely, who explained that the object of the meeting was to extend scientific education in the district, and that Mr. H. H. Sales, the senior secretary of the Yorkshire Board of Education, and Mr. Buckmaster, of the Science and Art Department, South Kensington, would address them on the subject. Mr. Sales sketched the history of the Yorkshire Board of Education. They were anxious to establish scientific classes in the county which would be self-supporting, and up to the present time their efforts had been crowned with success. In Middlesbrough they had a science class, but it proved a failure. The main check to the extension of scientific knowledge, however, was the scarcity of teachers, and this was what they were aiming to rectify. Mr. Buckmaster, in a few practical remarks, explained upon what conditions the Government gave assistance to the extension of scientific knowledge. After some conversation it was agreed, on the motion of Mr. Jones, "That this meeting considers it desirable that a committee should be hereby formed, for the purpose of carrying into effect the plan suggested by Mr. Sales for extending scientific instruction in the district;" and a committee for the purpose was formed.

A general meeting of the miners of Northumberland was held on Monday, near Seaton Delaval; of course, we mean the miners connected with the Union, or "Miners' Mutual Confidence Society." It appears that the funds of the society are in a flourishing state, and they have a good balance in hand. The number of men connected with the Union is about 5000, and most of them were present. It appears that the main object of this meeting was to discuss the state of affairs at the Seaton Delaval Colliery, where some misunderstanding has taken place between the masters and workmen. The principal speakers dwelt at length on what they termed the "confiscation" system, a word hardly suitable for the purpose intended. This is a reference to the system of fines for sending tubs of coals to bank containing a certain quantity of stones instead of coals. One of the speakers stated that one out of every thirteen tubs was "laid out" on coming to bank, and that in the short space of six months there had been 20,751 tubs taken in one pit, and the men fined to the extent of \$187, 13s. 6d. They consider oppressive and burdensome. The quantity certainly does appear to be very large, and the account is almost incredible; but many particulars are wanting that ought to have been given. The total quantity of stones is, no doubt, very large. The cost of picking the stones ought to have been given, as it is obvious that the colliery can get no profit from stones, the haulage of this rubbish out of the mine will cost the same amount as coals, as all other hands, excepting the coal hewers, are to be paid; and, in addition to this, the master has to pay the cost of taking the stones out, and to find a deposit for them. It is evident, therefore, that only loss can result both to master and workmen by sending rubbish out of the pit, and the men ought to avoid filling rubbish as much as possible. But the speakers threw no light on the matter of this dispute about the "laid out," but contented themselves with vague charges of confiscations, &c. As is well known, the coal trade has been very bad lately in Northumberland, and a number of men have been discharged in consequence, and this appears to be considered a grievance—that is, the particular men discharged are not the men the members of the Union approve of being dismissed. They, it appears, would have preferred that others should have been discharged instead. But the men can hardly seriously contemplate that they should be consulted on this score. Some of the speakers proposed that the men should raise funds and purchase collieries to work on their own account. This course has often been proposed, but never carried out, and it does appear somewhat strange that such a body of men as the miners of Northumberland have not adopted it. The knowledge they would acquire by this course would be of the greatest possible benefit to the men, as they would acquire actual experience as to the profits to be derived, and also the dangers and losses to be dreaded from the occupation of coal mines.

NORTHERN INSTITUTE OF MINING ENGINEERS.—At the meeting of this institute, held on Saturday last, several new members were elected, and after the routine business was disposed of, a paper was read by Mr. Boyd, "On Riveting, with a description of a new Portable Riveting Machine." The paper was most interesting, and it was well illustrated by drawings of different hydraulic and other machines; and also a minute description was given, and diagrams shown of a portable machine lately patented by Mr. Bunning, a full description of which will be shortly given in the Journal. After some discussion, the consideration of the subject was adjourned. The paper of Mr. Spencer, "Remarks on the Torsional Strain on Shafting," was postponed until next meeting. The report of the committee on "Technical Education" was read, and some discussion took place thereon, but it was ultimately determined to bring the whole subject before a general meeting of the coal trade on Saturday next, and it is hoped that the report of the committee will be then adopted, but full particulars will be given as to the measures proposed next week, when the decision of the coal trade meeting is known.

SALE OF THE LAND-SALE COLLIERY AND THE HETTON ESTATE, NORTHUMBERLAND.—On Wednesday, Mr. SAMUEL DONKIN (auctioneer, of Bywell, Felton, Northumberland) submitted the above-named manorial property for sale at the Mart, Tokenhouse-yard. The colliery is yielding a considerable vend, in addition to which there are large quarries of limestone, extensive deposits of fire-clay, and rich beds of blackband ironstone. There are 1525 acres of productive arable and pasture land, free from corn tithe, and land tax redeemed; the whole is thoroughly drained, and free from any drainage interest. It is apportioned into several farms, while the mansion, having been one of the fortified houses of the county in the time of Henry VIII., is surrounded on all sides by objects of Border history. Apart from its mineral and agricultural value, it possesses unusual attractions as a residential estate, as a well-known trout stream bounds the property for four miles, while the dry nature of the soils, with their luxuriant green and other crops lying in a southern aspect, make it a favourite resort of partridges and other winged game. It may be added that the estate has the command of an unlimited water power, the value of which cannot be overestimated in opening out the mineral resources of the property. It is within five miles of a first-class station upon the North-Eastern Railway. The present leasehold tenancies return an aggregate annual income of 2154. In the absence of any bids, negotiations have not been entered into to arrange for the purchase of the property by private contract.

DEATH OF MR. MARK FRYAR.—Mr. Fryar, of Eighton Lodge, was well known throughout the northern coal field as a viewer of great ability. Mr. Fryar, who for many years acted as chief viewer of the Tees Colliery, was a partner in the Pilsbetta Coal Company, and one of the principal salt manufacturers on the banks of the Tyne. The opinion of Mr. Fryar was very frequently sought for in matters relating to engineering difficulties in collieries. His death, at the age of 52, will cause a blank amongst our northern coal viewers that will not readily be filled up.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

OCT. 8.—A moderate business continues to be done at the various iron works in the neighbourhood of Chesterfield and on the route of the Erewash Valley. A very fair trade continues to be done in castings, but we hear of no great activity in rails and plates. From the number of furnaces which are now out of blast, there is every appearance that the manufacture of pig-iron for the present year will show a falling off fully equal to that of 1867, which was very considerable. The collieries are now becoming more active, and the output of coal is increasing, still the quantity going to London is not so large as is usual at this season of the year. Clay Cross last month having sent only 22,645 tons, against 26,814 tons for the same period of last year. From Staveley, Eckington, and Codnor Park about an average tonnage is being forwarded to the South, whilst a good many waggons of "hards" are finding their way to the iron works in Northamptonshire. Steam coal, as well as household qualities, are also in fair request for the Midland Counties as well as for the West of England and to Grimsby for shipment. In coke there is about the ordinary business being done, but which, it is expected, will be diminished more than otherwise, owing to the putting out of several blast furnaces.

Several of the Sheffield branches of the Steel and Iron Trades are looking up, so that a gradual improvement in most of them may be looked for. There is more doing in Bessemer steel materials, whilst those firms engaged in the manufacture of most descriptions of railway material are kept actively going. Heavy plates, so far, are only in moderate request, but considerable improvement in that very important branch of our business may be looked forward to. The iron works in the neighbourhood of the town, and also in Rotherham, are now turning out a good deal of materials, rails, hoops, and sheets being in very good request. There is also rather more doing in general castings at the principal works, where the trade during the summer has been more noted for inactivity than otherwise. The works in the vicinity of Huddersfield are what may be termed really busy, there being some good orders in hand for rails for the Eastern Counties and plates for the Indian Government, and for the well known firm of Samuda and Co., shipbuilders.

The reputation of the South Yorkshire district, of which Barnsley may be called the centre, for serious explosions has been fully maintained during the last few days. On Friday there was a boiler explosion at the Elsecar Works,

by which two men were killed, and on the Wednesday following an explosion at a works manufacturing lead to the death of eight persons up to to-day, while, in all probability, five more will have succumbed to the serious injuries received. The cause, like many of the explosions in our coal mines, was entirely attributable to a due want of caution in those engaged in a dangerous pursuit. A pot of inflammable material was put on to a stove in a room where fireworks were being manufactured, and in which a large quantity of them, as well as gunpowder, was lying about. A spark ignited the stuff, and soon fireworks and powder exploded, with the results stated.

The Iron Trade in South Yorkshire continues good in almost every department, there being a very good demand for rails as well as for castings of most descriptions. In Coal there is more doing, and during the present week the best qualities of Silestones and of the Barnsley seam have advanced in the London market 6d. per ton. Still the tonnage going to the metropolis by railway is by no means large, the rate by the Great Northern Railway being such as to act as a bar to our coalmasters doing as much as they would could they enter King's Cross on better terms. The result has been that whilst the Great Northern Railway during last month carried 14,439 tons less in September than it did in the previous month, the Great Western Railway, by its Wells, Lang-chire, and Derbyshire rates, is now largely increasing its carriage of coal. During the week there has been rather less doing with Hull and Goole, several vessels having left for Cronstadt and other Russian ports; and it is just possible that on their return they may be able to make another voyage, and clear the ice. For the Eastern Counties ports, and those in the south, a very fair trade is being done from both Goole and Grimsby in house and steam coal. There is a little improvement to be noted in the business doing into Lancashire, but prices have not increased. Coke continues in very good demand, most of what is made going to the furnaces in various parts of the country.

An improved smoke-consuming apparatus, the invention of Messrs. Hepworth and Bayldon, is at present in successful operation at the Sun Boiler Works, Wakefield. Its novelty consists of the furnaces being placed at the end of the boiler instead of being within it, as is the present custom, and of having a tank of tubes dividing the two fires, a damper being placed at the end of each set of fire-bars for the purpose of preventing the smoke of a newly-charged fire from going direct into the boiler flue. The smoke is thus compelled to pass through the tubes of the tank, and thence over the bright red flames of the adjacent fire, and thus the flames and smoke are commingled so effectually as to consume all dense smoke, the fires, of course being charged with coals alternately. In the flue of the boiler are a number of vertical tubes $\frac{1}{4}$ in. thick, screwed in top and bottom, and previously tested to bear a strain of 1000 lb. to the square inch, by which immense strength is gained, and a large increase of heating surface. The smoke tank is of the simplest form of construction, it is made of the best Low Moor or Farnley iron, and is also tubular, which, while adding to its strength, serves to conduct the smoke from one fire to the other by means of the dampers, as already shown. The tank, in case of needed repairs, can be taken out by simply unscrewing the two short tubes which connect it to the boiler, and without disturbing the brickwork of the furnace. The front plate of the tank, which is planed, can be easily taken off for the purpose of cleaning or examining the flues of the tank. As the feed-water passes through the tank it becomes heated before entering the boiler, and a constant circulation is ensured. The patentees claim for their new boiler and smoke consumer that it will not only evaporate more water with a given quantity of coals than any other boiler, but that it is a perfect smoke consumer.

LEEDS INDUSTRIAL EXHIBITION.—This Exhibition being about to be closed, the judges, after carefully examining the various articles of manufacture and industry, have made the following awards:—First prize: Silver medals have been awarded for specimens of brass work, to Joseph Whitely and Co.; for plain and imitation woods and marbles, &c., Greig and Noblet, Halifax; patent cooking ranges, &c., Heaps and Robinson, Leeds; improved steam-engine, &c., T. Green and Son, Leeds and London. Second prize Medals: Coach springs, William Wright, Leeds; horse shoes, J. Sawdon, Aramley; emery wheels, J. Morton and Son, Hummel-road, Leeds; glass steam-engine, W. Tasker, Bradford; galvanic batteries, &c., Dr. Bellhouse, Leeds; improved steam-gauge, R. Fourness, Jun., Leeds; patent caulking cement, Kay Brothers, Stockport; improved telegraphic apparatus, Hebdon and Co., Halifax; ornamental razors, W. Nelson, Upper Thorpe, near Sheffield; tin trunks, bins, &c., J. D. Duck and Son, Leeds; oil cans, J. Kaye and Co., Aramley, near Leeds; section of seam of Haigh Moor coal, weight 4 tons, J. Atkinson and Son, Leeds; patent metallic piston, Pigott and Farrar, Barnsley; slide and screw-cutting lathe, F. Barker, Hunslet-road, Leeds; patent portable steaming and boiling apparatus, Hull and Co., York; French and Derbyshire millstones, W. J. and T. Child, Leeds and Hull; parallel vice, Middleton and Co., Leeds; patent pulley-blocks, Pickering, Stockton-on-Tees; gas-cooking apparatus, Beverley and Sons, Leeds. The judges were:—Lieut.-Col. Child, Major R. W. Moor, Mr. Fisher, and Mr. Tesseymann.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

OCT. 8.—The quarterly meetings of persons connected with the Iron Trade have been held this week, at Wolverhampton on Wednesday, and at Birmingham to-day. These meetings have shown what other sources of information had already proved—that there has been during the quarter a steady increase in the demand for iron; and that the works are now, as a rule, pretty well employed; and that the more needy masters, who had to accept very low rates formerly, are able to obtain prices approaching more nearly those which are fixed by the trade council, though very few indeed yet actually get those prices. The improvement is general, and is not owing to any one cause. It seems now that buyers are satisfied they will not get iron cheaper, and that it is not improbable that it may be dearer, and hence they are making purchases more freely. There is a very general agreement that nothing could be more calamitous than such an exaggeration of the improvement as would lead to a number of new works being started, and to renewed competition by other districts and other countries. On the occasion of the last sudden advances there was a rapid drop, and the trade is only now recovering anything like a satisfactory position. Masters and men are equally interested in avoiding these great fluctuations. High prices and a high rate of wages are desirable for both, but lower rates with a steady trade are far better than a high scale, lasting for a time, followed by a long period of depression.

The appearance of the reports of the Inspectors of Mines calls forth similar remarks to those so often made as to their tardy publication. They contain comments on cases, some of which happened a year and three-quarters ago, and which are almost forgotten, and as to which it is now impossible to revive public interest. The startling occurrences which have happened since may well indispose the readers of a daily or a weekly paper to revert to such distant events. Thrones have fallen, Central Europe recedes, the basis of our Government lowered and widened, and numberless events taken place since people read, and were interested in reading, of the fatal accidents which are the subject of comment in these reports. They are dated at the end of February, and seven months is a long time to occupy in their printing. Why should they not be issued half-yearly? and what is there to hinder the report to June 30 appearing on Aug. 1? The present system is unfair to the Inspectors. Here is Mr. Baker's comments on the question "Regina v. Cope," which excited warm discussion, and exercised tongues and pens, last spring—nay, it relates to an accident which took place nearly two years and three months ago. It would be vain to expect to gain public attention now to the question in detail, but it may be stated that Mr. Baker, in an elaborate analysis of the case, shows that a part of the defence set up at the hearing of the case before the magistrates—that the place where the lives were lost was not dangerous, and was fenced—is wholly inconsistent with the admissions of the defendant at the inquest; and he reproduces three plans of the workings prepared by the same surveyor, one of which was published in a report of the trial, and which differs from the others, in showing that the place where the boys were found was ventilated. He also shows by extracts from the shorthand writer's notes how excessively difficult it was to get answers to plain questions, and that the case could only be proved by admissions wrung from, or which dropped unintentionally from, unwilling witnesses. It would be very hard, after reading the evidence as here given, to question the propriety of the decision of the magistrate that Mr. Cope was the person described in Rule 2, as "having on behalf of the owner the care and direction of the mines."

Mr. Baker, in his general remarks, comments on the system of employing chartermasters to get the minerals by contract, adding his testimony to that of many others, that this system leads to the loss of many lives. He states that more pits are now worked without chartermasters or butties than formerly, but does not anticipate that the system will be entirely dispensed with. The means he points out of remedying, or rather avoiding, the evils which spring from men so strongly interested in a large "get" being mainly entrusted to the management of mining operations are mainly directed to an increased and more effective supervision. He would have the mine agents visit the workings more frequently, and desires to see their deputies a superior body of men; and he points out the great advantage of having a superior class of chartermasters. That these suggestions are sound, perhaps no one will question; to secure their adoption is more difficult. If owners had generally a greater knowledge of mining, and exercised a more complete supervision, they would, perhaps, feel more deeply the value of safe and careful working; and if elementary education were more general, and superior in quality, a larger supply of youths fit for superior positions would be available.

Mr. Baker's report refers to the sad accident by an explosion at the Homer Hill Colliery, near Stourbridge, by which 12 persons lost their lives. At the close of his observations on this sad accident he had recommended the owner to adopt some further artificial means of

ventilation, and he is now considering the best mode of proceeding. The owners, Messrs. Swindell and Co., have been prompt in providing an effective means of securing an abundant ventilation by the use of one of Guibal's patent fans, 16 ft. 8 in. in diameter, which they have erected for the purpose. As this is the first instance of the employment of a mechanical system of ventilation in South Staffordshire, it was visited on Monday by some 40 members of the Association of Mine Agents,—a detailed notice of which is appended.

At the Rushall Police Court Mr. Thomas McGhee, manager of the Cannock Chase Colliery, has, upon the information of Mr. J. P. Baker, the Government Inspector for the district, been fined 10s., and costs in each case, for neglecting to securely fence a fly-wheel; for neglecting to provide an indicator to show the position of the lode in the shaft; and for neglecting to provide a bonnet at a pit where a cage was not in use.—Joseph Owens, a butty at Brown-hills Colliery, was fined 2s. 6d., and costs for neglecting upon engaging a workman to give him a copy of the special rules, or causing to be read over to him so much as referred to him.

The inquests on the persons, now 12 in number, who lost their lives last week by a boiler bursting at the works of Mr. Thomas Wells, at Moxley, near Bilston, were closed. It is satisfactory to state that the cause of the accident was made clear, and though there are strong reasons for excusing the non-disclosure of the defect which led to the catastrophe, yet it is rendered highly probable that a more careful examination would have discovered it. The coroners requested Mr. E. B. Marten, head engineer of the Midland Boiler Association, to examine and report upon the remains, and Mr. Wells instructed Mr. E. T. Wright, of Wolverhampton, who has had much experience in boilers, to do so on his behalf. The two consulted, and perfectly agreed. A careful examination of the fragments showed that the rupture first took place near a point where the heat of the ball-furnace reached the boiler, and it was clear that a seam-rivet, extending from one rivet to another, had existed here for some time before the accident, though its discovery would only be made by careful examination. The verdict of the two juries were very similar; that of the one which sat at Wolverhampton had this addition:—"The jury, in returning a verdict of accidental death as to the four men who died from injuries received at Mr. Wells's works, wish to suggest to the owners of boilers generally that repeated examinations of boilers should be made from time to time by a competent person other than the engineer in charge as working engineer."

NEW MODE OF VENTILATING MINES.—The Incorporated Association of Mine Agents of South Staffordshire, made an excursion on Monday, to Messrs. Swindell and Co.'s Homer Hill Colliery, near Cradley, in order to inspect and test one of Guibal's new patent fans for ventilating mines. This being the first application of mechanical ventilation in South Staffordshire, it was regarded with considerable interest by the mine agents of the district, who mustered to the number of about 40. Amongst the number we noticed Messrs. Wm. Hughes, H. Johnson (hon. secretary), T. Cheekley, J. Lindop, T. Parton, John Hughes, H. Johnson, jun., M. Fletcher, W. Spruce, George Spruce, W. Blakemore, Jno. Lawley, J. Skidmore, W. H. Howe, Richard Mason, R. Haines, jun., J. Ritson, J. Cope (Pensnett), W. and J. Cope (Potters), T. Williams, E. Greenway, B. Cartell, J. Fellows, J. White, Emanuel Benton, Isaac Meechan, J. Cole, E. T. Wright, G. Dutton, David Parsons, and others. The members were met at the pit at 3 o'clock by the proprietor, Mr. J. E. Swindell, his son, Mr. J. S. E. Swindell, and Mr. John Swindell, and the agent, Mr. E. Foley. The party at once proceeded to make an inspection of the fan, which is 16 ft. 8 in. diameter, 5 feet wide, enclosed in a brickwork casing, and connected to the top of the upcast shaft by a tunnel of 35½ square feet sectional area; is driven by a small 10-horse power high-pressure horizontal engine, connected with the winding-engine by gears; and the whole, when once started, requires little or no attention for days together. The air is drawn from the mine up the upcast pit, and driven by the fan up a short chimney, much wider at the top than the base. Near the bottom of this chimney is fixed a sort of Venetian shutter, for the purpose of regulating the quantity of air. The fan is fixed on the crank-shaft of the engine, so that the fan makes a revolution for every stroke of the engine. At an experimental trial made on the 10th instant, by the engine making 65 strokes per minute, it produced 37,500 cubic feet of air per minute, with a water gauge of only 1.05 in., showing that the large sectional area of thick coal roads reduces the friction to the merest minimum. The engine at this time only indicated 4-horse power. By increasing the speed to 96 strokes, with a water gauge of 1.75 in., it produced 51,700 cubic feet per minute, more than three times the quantity ever likely to be required. The total cost of engine and fan, complete, has been about 500l. The tunnel connecting the fan with the top of the upcast pit is approached by a covered way, having two air-tight doors in it. Through this the party passed into the main air-way, but this was the intense velocity of the current when the fan was put to run from 60 to 70 revolutions per minute that they were glad to beat a hasty retreat. When at the greatest speed it was scarcely possible for the party to stand upon their feet. It was clearly shown that it only took about 20 seconds to increase the ventilation from a state of stagnation to that of 50,000 cubic feet per minute. Coals are raised at both the upcast and downcast pits, but the upcast has to be worked with a movable wood cover, which is raised by the cage when it comes to the top. The party after inspecting all the surface arrangements, which are of the most improved and complete kind, descended the pit, under the guidance of Mr. E. Foley, in order to test the effect of the fan at the most remote part of the workings. The colliery comprises about 80 acres of coal of rather a fiery character, and the most distant part of the workings is about 500 yards from the pit bottom, and the coal about 200 yards deep. Here a side of work of about 10 pillars was found partly opened, and at the given moment when, it having been previously arranged that the speed of the fan should be increased, such was the increased velocity of the current through the stalls and openings, that most of the members were speedily in darkness, and almost smothered with coal dust, the effect of the increased velocity of the air current. It was impossible to carry a lighted candle in the gate road, 10 feet wide, and 10 feet high, against the current. The result was considered wonderful and highly successful, having regard to the simple means employed to produce it. The working plan of the colliery was in the most unreserved manner laid before the members by Mr. J. E. Swindell, and lucidly explained in all its details by Mr. J. S. E. Swindell, and was inspected with considerable interest, as it revealed the different systems of getting the 10 yard coal—namely, the old-fashioned way of "pillar and stall," "a long wall" proper in two sections, top and bottom, and the top section alone by "square work." Advantages were claimed for each system, but they depend upon the nature of the coal and thickness of the partings. Refreshments on a liberal scale were kindly provided by Mr. Swindell, and done full justice to, as pit inspection is undoubtedly hungry work. It will no doubt be in the recollection of our readers that this colliery, replete as it was then, was the scene of a terrible explosion on Nov. 11 last, by which 12 lives were unfortunately lost. Too much praise cannot, therefore, be given to Messrs. Swindell for thus applying the newest scientific invention for preventing the recurrence of so dreadful a calamity. We may add that the engine and fan were erected by Messrs. Black, Hawthorne, and Co., Newcastle-on-Tyne, under the direction of the licensee, Mr. Wm. Cochrane, of Ewleick Colliery, Newcastle-on-Tyne.

REPORT FROM MONMOUTH AND SOUTH WALES.

OCT. 8.—A few weeks ago an improvement set in in the Iron Trade of the district, which is now fully sustained, and the hands engaged at the leading establishments continue to be employed with something like regularity, principally in the completion of Russian engagements. The season is too far advanced for the chartering of any more sailing ships to the Russian ports, but the owners of steamers are willing to accept the high rates now being offered to convey iron to that country, and run the risk of returning until next spring. Some two or three of the ironmasters were of opinion, a few weeks ago, that when the Russian navigation season had closed there would not be contracts on the books sufficient to keep the hands employed during the winter months, but there has been an accession of orders of late, and the presence of several Russian agents at the Preliminary Meeting of Ironmasters has given rise to a belief that other engagements with the Muscovite empire will shortly be entered into. Enquiries from the Continent are not very numerous, and the exports to that quarter are principally of the miscellaneous descriptions. Transactions with the Continent will, probably, be limited for a short time to come, but as there is a fair prospect of the railway system becoming greatly extended, the new year will, no doubt, witness a favourable increase in the demand for rails and other matériel. There is a slight increase in the exports to America and the British colonies, but until the election of President is settled in the former country it is not expected clearances will be as they have been for the past two or three months. To the other foreign markets the exports are about the average. Home buyers are gradually increasing their purchases, and the contracts in the markets for rails are more numerous than has been the case for many months past. On the whole, the trade may be said to be in a hopeful state, and it will be highly satisfactory if orders do not decline during the next three months. Bars command a ready sale, and prices have a tendency to harden. There is a steady trade doing in pigs of the best brands, for which full list quotations are obtained. Tin-plate makers are well placed for orders, but prices are more in buyers' favour.

Steam Coal proprietors and shippers having somewhat recovered from the difficulty they have experienced for several weeks past in the want of suitable tonnage, have had to contend with adverse winds and storms during the past ten days, which have somewhat interfered with shipments; and, although there have been several arrivals at the local ports, very few vessels have been able to leave. This, to some extent, will cause a decrease in the exports, but as the weather appears to have settled in fine for some little time to come, and vessels of suitable tonnage being more plentiful than of late, there is every probability of a recovery taking place, and the trade attaining something like a satisfactory position. French houses are purchasing with tolerable freedom, and to the Mediterranean ports about an average quantity is being sent. The slight improvement which began to manifest itself in the house coal trade has not progressed with anything like rapidity, and a large number of the workmen continue to be only partially employed.

A strike has arisen among the Rhymney colliers and miners from some misunderstanding between them and Mr. D. Thomas, the underground agent. The agent had placed gates at the end of the horse-ways going down to the pits, these gates being open from six to seven o'clock in the morning and at six o'clock in the evening. The men were thus prevented from going to work after seven o'clock in the morning, and could not return until six in the evening.

The men are strongly opposed to the measure adopted by the Agent, and up to the present time no agreement has been come to. It is probable, however, that a few days will witness the end of the dispute.

During September the number of vessels which entered the docks at Cardiff amounted to 537, and the departures to 563. The number is slightly below that of September, 1857, and this is, probably, owing to the unsettled state of the weather, which for some days has had a considerable influence on the departures. During the month 14,157 tons of iron ore, 4765 tons of pitwood, 1097 tons of pig-iron, 4900 boxes of tin, and 578 tons of Esparto grass have been imported.

A report is current at Aberdare and Merthyr that Mr. Fothergill is in treaty for the purchase of another iron works situated in that locality, and which for some time past has been stopped. I cannot vouch for the accuracy of the report, but should it prove correct there is no doubt that it will lead to a very increased employment for the working classes. Mr. Fothergill's establishments have always been characterised by vigorous management, and whatever he undertakes he carries out with a determination which indicates business capabilities, as well as practical knowledge of the highest order.

Since the reorganisation of the Ebbw Vale Company it is satisfactory to find that public confidence in the undertaking is making gradual and certain progress, which there is every probability will continue. Twelve months ago the shares were down as low as 9s., and it was a considerable time before any substantial advance took place, but at last a favourable turn has set in, the current quotations being 15s. to 15½s. With an improvement in the iron trade there is no doubt that the Ebbw Vale shareholders may safely look forward to tolerably good dividends.

The arrivals at Swansea include—The Magnet, from Girgenti, with 245 tons of sulphur, for J. Beynon; San Jose, from Cuba, with 680 tons of copper ore, for Richardson and Co.; Cornwall, from Carrizal, with 138 tons of copper ore, and 618 tons of copper regulus, for H. Bath and Son; Rivalet, from Carlfort, with 257 tons of zinc ore, for H. Bath and Son; Globe, from Carlfort, with 345 tons of zinc ore, for Richardson and Co.; Sunshine, from Tilt Cove, with 325 tons of copper ore, for H. Bath and Son; Eliza, from Drammun, with 215 tons of nickel ore, for G. E. Bird and Co.; William and Sarah, from Antwerp, with 200 tons of fire-clay, for Vivian and Son.

PRACTICAL METALLURGY.

Our metallurgical literature promises at no distant period to be as remarkable for its abundance as it was a few years since for its scantiness, another important addition having just been made in Messrs. Crookes and Röhrig's translation, or adaptation, of the standard work of Prof. KERL. All reference to the various metallurgical processes in use in the smelting-works in Great Britain, except when they are identical with those employed under similar circumstances on the Continent, has been carefully avoided, and, as no attempt has been made to indicate the particular British ores to which the several processes are applicable, the reader is not likely to be troubled with information which he could acquire by personal observation at home. The treatise is intended to furnish the English metallurgist with the contemporaneous experience of metallurgical operations acquired chiefly on the European Continent; the volume is, in fact, a collection of Prof. Kerl's notes, so that the reader or student may elaborate them according to the details of his own judgment from the information he has acquired in the lecture room or from practical experience. Under these circumstances, all reference to the principles of metallurgy has been dispensed with, the book commencing with a list of the ores of lead and the localities in which they are found, followed by a synopsis of processes for the extraction of lead from its ores, and the influence of foreign substances contained in lead ores. Such works as those of Laurin on Lead, and of Lamborn on Metallurgy (published in Weale's series), have been largely drawn upon, so that all published knowledge has been as far as possible assimilated, and the model chosen for the treatment of lead has been followed with regard to the other metals, &c., treated of in the book, and embracing silver, zinc, cadmium, tin, mercury, bismuth, antimony, nickel, arsenic, gold, platinum, and sulphur.

But perhaps the book, which is thoroughly well printed, and consists of more than 700 pages, is of greatest value for the abundance of the references given, which enable the reader to avail of the original source of the facts stated with regard to any particular branch of the subject in which he may be interested. In these days of rapid progress and continual improvement in industrial operations it is essential that every practical man should keep himself well informed of movements of those engaged in similar businesses in localities beyond the sphere of his own personal observation; and to enable him to do this such works as "Kerl's Metallurgy" are of especial utility, since they bring together in a convenient form the records of continental progress, a knowledge of which could not otherwise be obtained without more extensive reading.

"Practical Treatise on Metallurgy" (adapted from the last German edition of Prof. KERL's Metallurgy), by WM. CROOKES, F.R.S., and ERNST RÖHRIG, Ph.D. London: Longmans, Green, and Co.

EXAMPLES OF MODERN ENGINES.—The fifth part of this valuable collection of engineering precedents contains Details of Engines of the R.M.S. Pasha, constructed by Messrs. J. and G. Thompson, of Glasgow, and a plan showing Engines of the Leipzig Water Works, constructed by the Hamburg and Magdeburg Steamship Company. In the letter-press portion of the work the consideration of pumping-engines is commenced, and a large number of admirably executed engravings is given.

In Chancery.

WRIGHT v. WRIGHT.

ADVERTISEMENT FOR TENDERS.

PERSONS DESIROUS TO TENDER for the COLLIERIES and BRICKWORKS of THOMAS NORTH, late of Basford Hall, in the county of Nottingham, coalmaster, deceased, the executor in this Cause, are, on the 3d day of November, 1868, to SEND IN TENDERS for the PURCHASE of the said COLLIERIES and BRICKWORKS under sealed covers, marked "Wright v. Wright," directed to JOHN ARTHUR BUCKLEY, Esq., the Chief Clerk of Vice-Chancellor Sir RICHARD MALINS, at his Chambers, situate at No. 3, Stone Buildings, Lincoln's Inn, London, by whom such tenders will be opened at Two o'clock in the afternoon of that day, when all parties tendering are at liberty to attend.

Full particulars of the property to be tendered for, and the form of tender, may be seen at the office of Messrs. WELBY and WING, Nottingham, the plaintiff's solicitors, between the 31st of August and the 20th of October, 1868, both inclusive.

The plaintiff, who is a mortgage creditor for a large amount of the testator, has, under an Order of the Vice-Chancellor, obtained leave to tender for the property, and a right has by such order been reserved to him, subject to the consent of the defendant and the approval of the Court, to elect, on or before the 17th November, 1868, that neither of the tenders made should be accepted, in which case the property will be sold by auction, with the approval of the Court, in the course of the ensuing year; but failing such election, consent, and approval within the period aforesaid, the highest tender will be accepted, on the condition of the party making it signing on or before the 30th of the same month, and in this respect time is to be deemed of the essence of the condition. A formal contract as to payment of deposit (not exceeding 5 per cent.), commencement of abstract, title, time for completion of purchase, and all other necessary provisions, to be approved of by the Court, and submitted to the said party on or before the 30th of the same month of November.

J. A. BUCKLEY, Chief Clerk.

MINING MACHINERY AND MATERIALS FOR SALE.

THE UNDERSIGNED IS PREPARED TO RECEIVE TENDERS for the PURCHASE of the MINING MACHINERY AND MATERIALS at NORTH WHEAL ROBERT MINE,

Near TAVISTOCK, DEVON, in One Lot, as they now stand.

The following are the principal articles, but a full inventory can be seen on application:—

WESTERN MINE.
A 23 in. STEAM ENGINE, with 10 ton BOILER; crusher, with 20 in. rolls; 2 balance bobs, with strapping plates, &c.; 40 fms. of 2½ in. round iron rods, with pulleys; 14 fms. of 8 in. pumps, with 7 in. working and doorpiece; 20 fms. of 8 in. pumps, with 6 in. working and doorpiece; 5 in. plunger pole, with case and bottom, complete; 100 fms. of ladders, casings, and dividings; 4 tram wagons; tram iron; 12 head stamps, with lifters, complete; small water wheel, buddles, calciner; small water wheel; sheds; smiths' anvils, vice, tools; iron capstan axle; tram wagons; skips, lot of chain, and other small sundry lots.

EASTERN MINE.
A WATER WHEEL, 40 ft. high by 4 ft. breast; 10 tons wrought iron rods, complete; 2 balance bobs, and 1 angle bob, with brasses; 50 fms. of 8 in. main rods, with strapping plates and bolts; 10½ fms. of 9 in. pumps, with 8 in. working barrel; 20 fms. of 11 in. pumps; 10½ in. plunger pole, with stuffing box and glands; capstan; 4 shears, capstan rope; 6 tram wagons; 60 fms. of ladders, casings, and dividings; small steam engine; drawing machine; crusher, pulleys, and rope; lots of tram iron; dressing floors; sheds, hutchies, tools; a water wheel, 30 ft. high by 4 ft. breast; crusher; smiths' anvils, vice; miners' tools; new and old iron, rope, griststone, &c.

Tenders will be received till Twelve o'clock on Thursday, the 29th instant, when the highest satisfactory offer above the reserve price will be accepted. A contract will have to be signed by the party whose tender may be accepted, and he will also be required to pay a deposit of 15 per cent. at the same time. The remainder in approved bills at short dates.

J. H. MURCHISON, Liquidator.
8, Austin Friars, London, E.C., 9th October, 1868.

IN THE TOWER FOUNDRY IS THE TYNE DEPOT FOR MACHINERY of every description for WOOD and IRONSTONE, CORN-CRUSHING, and PUG MILLS. Also, AGRICULTURAL IMPLEMENTS.

PROPRIETOR, G. HARLE, JUN.,
No. 49, MAPLE STREET, NEWCASTLE.

PURCHASERS of PORTABLE ENGINES and STEAM CRANES will do well to ask G. HARLE's price for the same.

King's College, London.

LECTURES on MINERALOGY and GEOLOGY at KING'S COLLEGE, LONDON, are given on Wednesday and Friday mornings, from Nine to Ten o'clock, by PROF. TENNANT, F.G.S. Those on MINERALOGY begin on the 9th October, and terminate at Christmas; fee, 2s. 2s. Those on GEOLOGY commence in January, and continue till June. A shorter course of LECTURES on MINERALOGY and GEOLOGY is delivered in Evening Classes, from Eight till Nine. These begin on the 15th October, and terminate at Easter; fee, 2s. 1s. 6d. Mr. TENNANT accompanies his students to the public museums and to places of geological interest in the country; he gives PRIVATE INSTRUCTION at 149, STRAND, W.C.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the TREVENEN AND TREMENEHERRE MINING COMPANY.—Notice is hereby given, that a PETITION for the WINDING-UP of the ABOVE-NAMED COMPANY by the Court, was on the 14th day of September last, presented to the Vice-Warden of the Stannaries by William Henry Lanyon, a creditor of the said company, and that the said petition is directed to be heard before the Vice-Warden, at the Prince's Hall, Truro, within the Stannaries of Cornwall, on Wednesday, the 11th day of November next, at Twelve o'clock at noon precisely.

Any contributory or creditor of the company may appear at the hearing and oppose the same, provided he has given at least two clear days' notice to the petitioner, or his solicitor, of his intention to do so, such notice to be forthwith forwarded to P. P. Smith, Esq., secretary of the Vice-Warden, Truro. Every such contributory or creditor is entitled to a copy of the petition and affidavit verifying the same from the petitioner or his solicitor, within 24 hours after requiring the same, on payment of the regulated charge per folio.

Affidavits intended to be used at the hearing, in opposition to the petition, must be filed at the Registrar's Office, Truro, on or before the 3d day of November next, and notice thereof must at the same time be given to the petitioner, or his solicitor.

F. HEARLE COOK, Truro,
(Solicitor for the Petitioner.)
Dated Truro, Oct. 3, 1868.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the WORVAS DOWNS MINING COMPANY.—By the direction of His Honor, the Vice-Warden, notice is hereby given that, on Tuesday, the 27th day of October inst., at the Registrar's Office, at Truro, in the County of Cornwall, at Eleven o'clock in the forenoon, this Court will PROCEED to MAKE a CALL of NINE SHILLINGS PER SHARE on all the contributories of the said company settled on the List of Contributories of the above-named company under Class A. All persons interested therein are entitled to attend at the time and place aforesaid to offer objections to such call.

WM. MICHELL, Registrar of the said Court.
Dated Registrar's Office, Truro, the 6th day of October, 1868.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the SOUTH CARADON WHEAL HOOPER MINING COMPANY.—By the direction of His Honor, the Vice-Warden, notice is hereby given that, on Wednesday, the 21st day of October inst., at the Registrar's Office, at Truro, in the County of Cornwall, at Eleven o'clock in the forenoon, this Court will PROCEED to MAKE a CALL of ONE POUND FIVE SHILLINGS PER SHARE on all the contributories settled on the List of Contributories of the above-named company under Class A. All persons interested therein are entitled to attend at the time and place aforesaid to offer objections to such call.

WM. MICHELL, Registrar of the said Court.
Dated Registrar's Office, Truro, the 6th day of October, 1868.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the EAST BASSET AND GRYLLS MINING COMPANY.—By the direction of His Honor the Vice-Warden, notice is hereby given, that on Wednesday, the 21st day of October inst., at Eleven o'clock in the forenoon, at the Registrar's Office, at Truro, in the County of Cornwall, this Court will PROCEED to MAKE a CALL of TEN SHILLINGS PER SHARE on all the contributories of the said company settled in Class A. All persons interested therein are entitled to attend at the time and place to offer objections to such call.

WILLIAM MICHELL, Registrar.
Dated Registrar's Office, Truro, 8th day of October, 1868.

Companies Act, 1862.

RE GRONANT MINE COMPANY (LIMITED).

GRONANT SILVER-LEAD MINE,

Situate in the parish of LLANASA, in the county of FLINT, two miles from the Prestatyn Station on the Chester and Holyhead Railway.

MR. BELL has received instructions to OFFER FOR SALE, BY PUBLIC AUCTION, in One Lot, at the company's office in Gronant, in the parish of LLANASA, county of Flint, on Thursday, the 15th day of October, 1868, at Three o'clock in the afternoon,

The company's interest in the several LEASES, AGREEMENTS, and TACK NOTES of the MINERALS under the lands in the parish of LLANASA, therein specified, together with the ENGINES, MACHINERY, ROPES, TACKLE, LADDERS, MATERIALS, &c., now on or belonging to the MINE.

The minerals are held under leases granted from Sir PIERCE MOSTYN, Bart., the Rev. J. B. H. BROWN, and BALDWIN LLOYD, Esq., at moderate royalties, and extend from east to west about a mile and a quarter, and nearly the same length from north to south.

The MACHINERY comprises a 60 in. high-pressure expansive condensing ENGINE, with TWO BOILERS and PITWORK of the most approved character; THREE other excellent ENGINES, with BOILERS, one for pumping, the others for winding; CRUSHING MILLS, WHIMS, LADDERS, DRESSING FLOORS, and all other requirements, and complete order.

Catalogues are now in preparation, and will in a few days be ready for delivery.

For further particulars, apply to Mr. JOHN S. BLEASE, the Official Valuator, Commercial Chambers, Lord-street, Liverpool; Mr. WILLIAMSON, Solicitor; or Mr. BELL, Auctioneer, Holywell.

In the Matter of the Companies Act, 1862,

AND

THE BWLCH-Y-PLUM LEAD MINING COMPANY (LIMITED).

MR. DAVID JONES WILL SELL, BY AUCTION, on Friday, the 23rd day of October, 1868, at Three o'clock in the afternoon, at the Town Hall, Cardiff (subject to conditions to be then and there produced), the COMPANY'S INTEREST in all that VALUABLE LEAD MINE, called

THE BWLCH-Y-PLUM.

Situate in the parish of LLANFROTHEN, in the county of MERIONETH, NORTH WALES.

Together with the PLANT, consisting of a valuable WATER-WHEEL and GEARING, PUMP, WASHING GEAR, and other effects—all in good working condition.

The property is offered for sale for the residue of a term of 21 years, which commenced on the 25th day of March, 1863, and subject to a dead, or minimum, rent of £100 per annum.

For further particulars, apply to Mr. WILLIAM CASSON, Port Madoc; Mr. WILLIAM CRIPPIN, Seymour House, Old Trafford, Manchester; Mr. DANIEL CLARKE, No. 13, Pitt-street, Liverpool; or to Mr. WILLIAM RADCLIFFE, solicitor, No. 12, Sweeting-street, Liverpool.

DERBYSHIRE.

VALUABLE COAL MINES AT CHURCH GRESLEY, DERBYSHIRE.

MR. LEEDAM WILL SELL, BY AUCTION, at the Three Queens Hotel, in Burton-on-Trent, in the County of Stafford, on Thursday, the 15th day of October, 1868, at Five o'clock in the evening, subject to conditions of sale then to be produced:—

The valuable SEAMS of COAL underlying part of the estate of the late JAMES HANSON, Esq., of Cadley Hill, in the County of Derby, viz:—

No. on Plan.	Description.	A. R. P.
27	Cart Hovel	6 1 24
28	Crab Tree Flat	7 2 27
29	Priest Butts	6 3 25
30	Brown's Flat	3 3 12
31	Near Kid's Field	10 0 31
32	Far Kid's Field	9 1 18
33	Peace's Kid's	8 2 24
34	Keper's House and Garden	0 0 23
35	Kid's Wood	4 3 9
Total		67 3 33

The property is bounded by land belonging to Lord Teignmouth, Sir Thomas Gresley, Bart., Hugh Brookes, Esq., Morris Piddock, Esq., John Richardson, Esq., and others, and adjoins the extensive collieries of Messrs. Hall and Boardman.

The following well-known SEAMS of COAL have been proved in the immediate neighbourhood:—

The Nether or Main Coal	about	5 ft. 0 in. thick.
The Woodfield Little Coal	"	11 0 "
Woodfield Coal	"	5 0 "
Stockings Coal	"	5 0 "
Eureka	"	4 8 "
Stanhope	"	4 7 "
Silkestone	"	2 3 "
Kilbuck	"	4 4 "

This desirable mineral estate is almost surrounded by good roads, and is within five miles of Burton-on-Trent, six from Ashby, half-a-mile from the Gresley Station, on the Leicester and Burton lines of the Midland Railway, and one mile from the station on the Swadincote Branch.

Plans and particulars are being prepared, and may be obtained from Mr. SPOONER, land agent, Burton-on-Trent; Mr. WILLIAM SOUTHALL, land agent, Derby; or from Messrs. BASS and JENNINGS, solicitors, Burton-on-Trent.

Sept. 18, 1868.

NORTH WALES—QUEEN'S FERRY, FLINT.

CLOSE TO THE RAILWAY.

TO BE SOLD OR LET, DESIRABLE FREEHOLD MANUFACTURING PREMISES, WITH ENGINE-POWER and LAND.—A plot of about one acre, with substantial factories, engine-house chimneys, stable, outbuildings, and sheds, suitable for any manufacturing purpose. ENGINE of most recent construction, and BOILER nearly new.

For further particulars, apply to JOHN TEMPLE, 32, Redcross-street, Liverpool.

WEST BRITON MINE, PARISH OF CROWAN, CORNWALL.

MR. T. T. WHEAR is instructed to SELL, BY PUBLIC AUCTION, in One Lot, on the mine, on Tuesday, the 13th day of October, 1868, at noon, the

WEST BRITON MINE LEASE,

With a 48½ in. ENGINE, TWO BOILERS, CAPSTAN, SHEARS, CAPSTAN ROPE (about 60 fathoms), PITWORK, with all the other PLANT and MATERIALS.

The engine will remain at work, and the mine can be inspected by applying to Capt. WILLIAM ROSEWARNE, the manager.
Dated 29th September, 1868.

GREAT WHEAL FORTUNE MINE, BREAGE, CORNWALL.

VALUABLE MINE MACHINERY AND MATERIALS FOR SALE.

MR. T. T. WHEAR (Auctioneer, &c., Camborne), is favoured with instructions to SELL, BY PUBLIC AUCTION, on Tuesday, the 20th of October, 1868, at Eleven o'clock in the morning, at

GREAT WHEAL FORTUNE MINE,

In the parish of BREAGE, the whole of the valuable MACHINERY and MATERIALS thereon—viz:—

A 70 in. PUMPING ENGINE, 8 ft. stroke.
A 40 in. PUMPING ENGINE, 9 ft. stroke, equal beam, with THREE 11 ton BOILERS.

A 36 in. cylinder STAMPING ENGINE, 9 ft. stroke, TWO 10 ton BOILERS, and THREE STAMPS' AXLES for 16 heads each.
A 24 in. cylinder WHIM ENGINE, 6 ft. stroke, with 7 ton BOILER complete.
A 20 in. STEAM WHIM, 6 ft. stroke, with 7 ton BOILER.

ON THE OLD MINE.
1 18 feet WATER WHEEL, 33 in. breast with stamps axle for 8 heads, nearly new. 1 28 feet ditto, 3½ feet breast with iron stamp axle for 16 heads, 1 30 feet WATER WHEEL, 3½ ft. breast, with iron axle cranks and balance bobs, 1 16 heads iron stamp axle, nearly new, WATER WHEEL and shed, shears 60 feet high, and capstan and balance bob at 70 in. engine, 2 other balance bobs, 14 in. capstan rope, Hunt's patent jiggling machine, excellent winch on wheels for surface work, 2 underground ditto, lifting jack, 2 pairs iron treble blocks, 1 ditto with brass shovels, large brass bell, 2½ in. drop screw, iron tram wagons, tram iron, &c., &c.

8 9 ft. 17 in. pumps
43 9 ft. 16 in. ditto
27 9 ft. 15 in. ditto
5 6 ft. 15 in. ditto
1 3 ft. 15 in. ditto
8 9 ft. 14 in. ditto
2 6 ft. 14 in. ditto
4 16 in. H and top doorpiece
4 6 ft. 16 in. windbore
1 9 ft. 16 in. ditto
2 6 ft. 16 in. clack seat pieces.
1 15 in. H and top doorpiece and windbore

1 12 in. H and top doorpiece and windbore
1 12 in. plunger pole, stuffing box and gland, and pole cap
3 15 in. plunger pole, ditto, ditto
3 16 in. plunger pole, ditto, ditto
4 10 in. plunger pole, ditto, ditto
1 10 in. top doorpiece
1 9 in. H piece
100 fms. 14 in. main rods
25 pairs of 7 inch fagotted strapping plates.

ON THE DRESSING FLOORS.
4 Borlase's patent buddles, 50 tin dressing frames, buddles, launders (various sizes), kieves, barrels, water wheels, strips, tin hutchies, and other tin dressing tools in the usual varieties. Also all the tin leavings on the mine.

IN SMITHS' SHOP.
1 28 in. smiths' bellows, 139 in. smiths' bellows, 2 smiths' anvils, vice, mandril, smiths' tools, smiths' crane, iron skips, scales and weights, screw stocks, screw tools, staples and glands, rod and flange bolts, bucket prongs, miners' tools, pump rings, new and old steel, new and old iron, 14 large wood houses and sheds, and about 250 lots of new and old timber.

ON CARNMEAL.
1 5½ in. working barrel, with clack seat pieces and windbore
90 fms. 1½ in. flat iron rods
120 fms. 1½ in. round iron rods
70 fms. 1½ in. pump rods
42 pairs 5½ in. 6 in., and 5½ in. strapping plates.
4 10 in. wood rods
10 9 in. ditto
3 8 in. ditto
3 12 in. plunger poles
1 7 in. ditto
2 pairs fagotted caps (bob)
2 balance bobs. Underground angle

Shears 70 feet high, 8 arm capstan, 10 in. capstan rope, 125 fathom ¾ in. new capstan chain, 125 fathoms each ¾ in., ¾ in., 9 16ths in. whim chains. A large number of shovels various sizes, from 2 feet to 6 feet. 2 horse whims and chains. An excellent miners' dry—tube weighing 4½ tons—54 ft. long. About 30 fms. iron stave ladders. Also all the account house furniture, miners' dial, &c., and multitudinous other lots too numerous to particularise.

Refreshments will be provided.

The Auctioneer, in calling the attention of Pursers, Managers, Mine Agents, and the Mining Public generally, to the above important sale, would state that the engines are a valuable lot, and in excellent working condition, and the pit-work and materials will be found equal, if not superior, to any offered in the county for many years.

Any further information may be obtained on application to Capt. DANIELL, the agent on the mine; or to Mr. T. T. WHEAR, Auctioneer, &c. Camborne.
Dated October 6, 1868.

TO BE LET, the MINES under the township of TORKINGTON, consisting of all the well-known SEAMS of COAL—viz:—

THE CANNEL SEAM.
THE BIG MINE SEAM.
THE TWO FEET SEAM.
THE FOUR FEET SEAM.
THE FIVE FEET SEAM.
THE SILVER MINE SEAM.
THE WATERLOO SEAM.
THE NEW MINE SEAM.
THE WOOD MINE, OR RED ACRE SEAM.

The whole of the MINES under the township, consisting of about SEVEN HUNDRED AND EIGHTY TWO ACRES (exclusive of waste lands and roads), are TO BE LET on moderate terms.

There are several pits (filled up) on the estate, from which but a small portion of the mines was worked out upwards of a hundred years ago.

On adjoining lands a colliery is now at work, and has been so for many years. The Macclesfield and Bollington Railway passes through the township very conveniently for colliery purposes. There are good roads throughout the township. A good land sale may be fully anticipated.

In fact, everything seems to be well arranged for opening out a good and extensive colliery.

The estate is conveniently situated within two miles of the town of Stockport, on a good road.

For further particulars, and to treat for the same, apply to Mr. W. S. COPE, Mining Engineer, Port Vale, Longport, Staffordshire; GEORGE COLLINS, Esq., Knutsford, Cheshire; Messrs. HATHAWAY and ANDREWS, Solicitors, 12, Bedford-row, London; or to NIVEN RALSTON, Esq., Nursery House, Carrington-road, Manchester.—Port Vale, Longport, Oct. 5, 1868.

SLATE AND SLAB QUARRY TO BE LET.—A PRODUCTIVE SLATE AND SLAB QUARRY will be LET TO WORK for a TERM of YEARS, with OPTION of PURCHASE, for a reasonable price.

The quarry is situated on the side of a hill, and opened in extensive galleries, within 2½ miles to a railway station, and the same distance to a canal, and possesses a great advantage of carriage over other quarries for the English markets.

During the last few years hundreds of tons of good marketable slates have been made, and great numbers were sent to London, Birmingham, and other large towns.

For further particulars, address "No. 2500," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

FOR SALE (a bargain), A CORNISH PUMPING ENGINE, of 240-horse power, in good condition.

Applications to be addressed to "H. J. R.," MINING JOURNAL Office, 26, Fleet-street, E.C.

FOR SALE, A FIRST-CLASS SECONDHAND 8-horse power PORTABLE STEAM-ENGINE, of recent construction, by eminent makers.

NEW PORTABLE STEAM-ENGINES, from 5 to 25-horse power, of the highest order, on advantageous terms. Prize Medals awarded—Hamburg, 1863; Paris, 1867.

Apply to BARROWS and STEWART (late Barrows and Carmichael), Engineers, Banbury.

ESTABLISHED 1844.

GREAT BRITAIN MUTUAL LIFE ASSUR

RAILWAY WAGON WORKS, BARNSELY.
MESSRS. G. W. AND T. CRAIK
 ARE PREPARED TO
SUPPLY COAL AND COKE WAGONS
 OF EVERY DESCRIPTION,
 Either for cash, or by deferred payments through wagon-leasing companies.
WAGONS PROMPTLY REPAIRED.

COAL WAGONS.
RAILWAY WAGONS, capable of CARRYING SIX TONS OF
 COAL, TO BE LET BY THE MONTH OR YEAR, upon favourable terms.
 Address, B Box, Post-Office, Hereford.

LOCOMOTIVE TANK ENGINES FOR MINES AND COLLIERIES.

HENRY HUGHES AND CO.,
FALCON WORKS, LOUGHBOROUGH,
 Have ALWAYS IN PROGRESS, and can SUPPLY at short notice,
TANK ENGINES
 To suit any gauge of railway and gradients from 1 in 16.

THE BEVERLEY IRON AND WAGON COMPANY
 (LIMITED).
MANUFACTURERS OF RAILWAY WAGONS, WHEELS
 AXLES, LORRIES, CARTS, WOOD WHEELS, &c.,
 IRONWORKS, BEVERLEY, YORKSHIRE.

RAILS OF PERMANENT WAY, CONTRACTORS' AND COLLIERY SECTIONS,
 CHAIRS, FISH-PLATES, SWITCHES, AND CROSSINGS.
 Sundry lots of RAILS, suitable for sidings, &c., ON SALE, by—
 Mr. ROBERT WRIGHTSON, NEWPORT, MONMOUTHSHIRE.

DIRECT-ACTION STEAM PUMP
 (WAYGOOD'S PATENT)
 SUPERSEDES THE INJECTOR for its SIMPLICITY, CHEAPNESS, &c.
 Patronised by Her Majesty's Government.
 A sample may be seen at—
 W. KIRK'S, SOLE AGENT,
 33, LOWER KING STREET, MANCHESTER.

TO COLLIERY PROPRIETORS.
UPWARDS OF 6000 LARCH, 4000 OAK POLES, 100 OAK AND
OAK PLANKS upwards of 20 feet long; **ELM COAL-PIT RINGS**, ready
 cut, in stock.
 All kinds of **ENGLISH TIMBER** supplied in the round, and **OAK AND LARCH**
 SCANTLING cut to sizes for railway and coal-wagon building.
 Dealer in all kinds of **BRITISH TIMBER**.
MILLWRIGHTS, ENGINEERS, COACH BUILDERS, WHEELWRIGHTS,
 &c., supplied on the most reasonable terms.
JAMES ATKINSON,
 No. 63, GRANBY ROW, MANCHESTER.

TO CAPITALISTS, RAILWAY CONTRACTORS, BUILDERS, BRICK, TILE,
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 Are PREPARED to SUPPLY, on very advantageous terms, **FIRE-CLAYS** well
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 It is simple in its construction, burns well, and is in every respect a practicable
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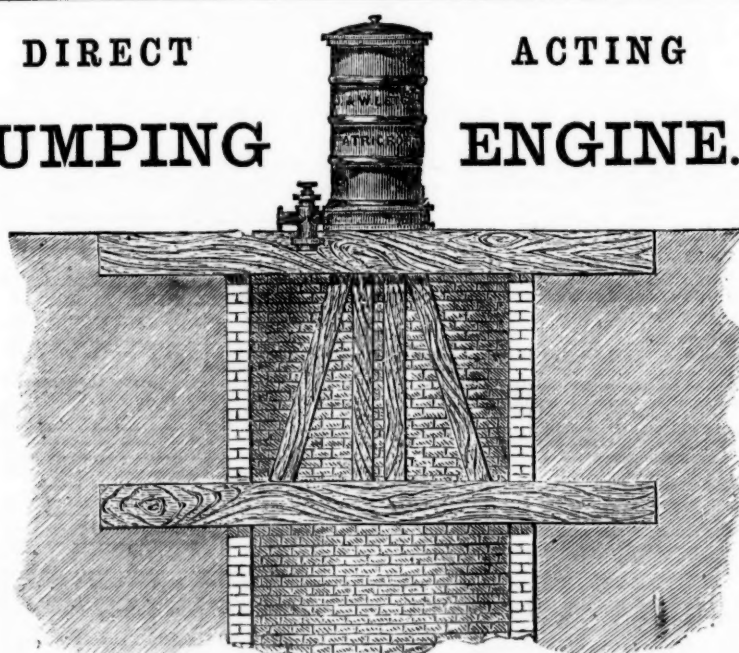
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 The unrivalled success of which is now established beyond a doubt. These TURBINES are now working on falls from 18 inches to
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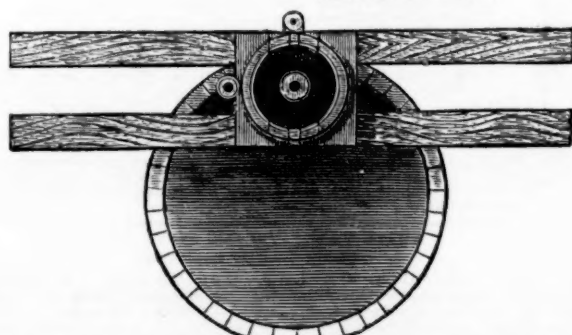
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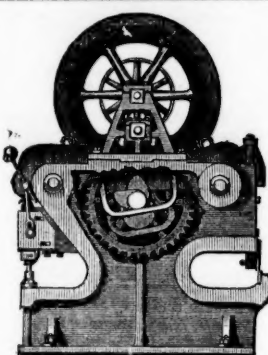
PLAN VIEW, SHOWING THE ENGINE OVER THE COAL PIT.

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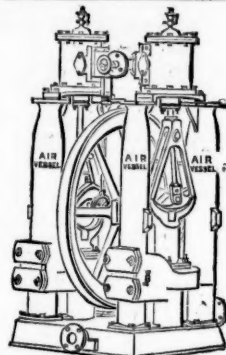
Obtained the PRIZE MEDALS at the "ROYAL EXHIBITION" of 1851; at
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 EXHIBITION," in Dublin, 1865; and at the "UNIVERSAL EXHIBITION,"
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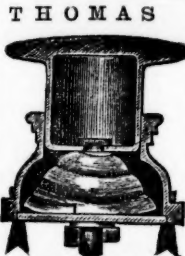
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SINGLE AND DOUBLE-ACTING
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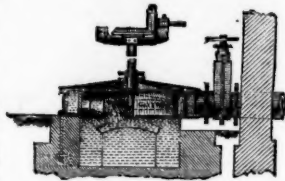


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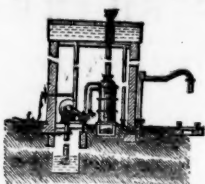
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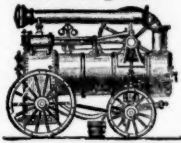
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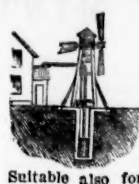
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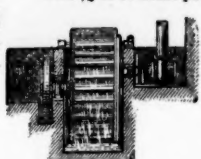
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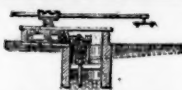
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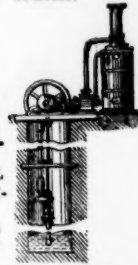


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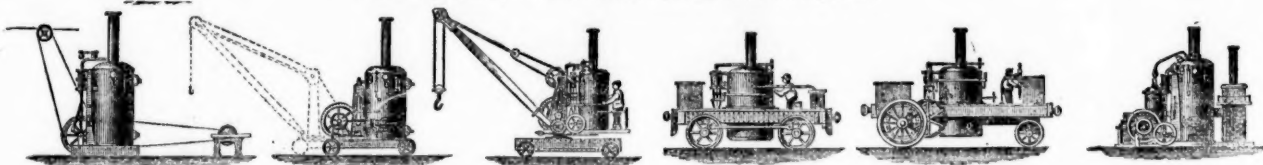
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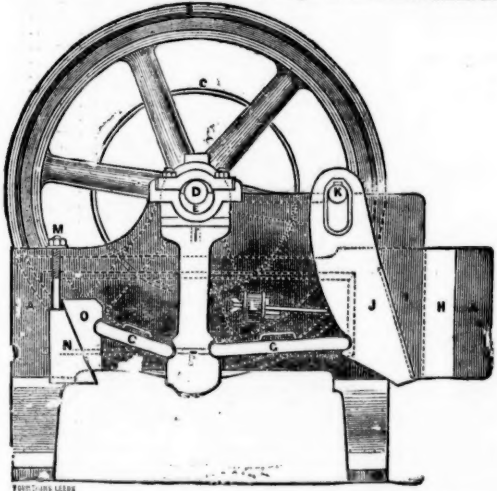
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For the Parys Mining Company, JAMES WILLIAMS.

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CAUTION!

BLAKE'S PATENT STONE BREAKER,

In Chancery.

BLAKE v. ARCHER, NOVEMBER 12, 1867.

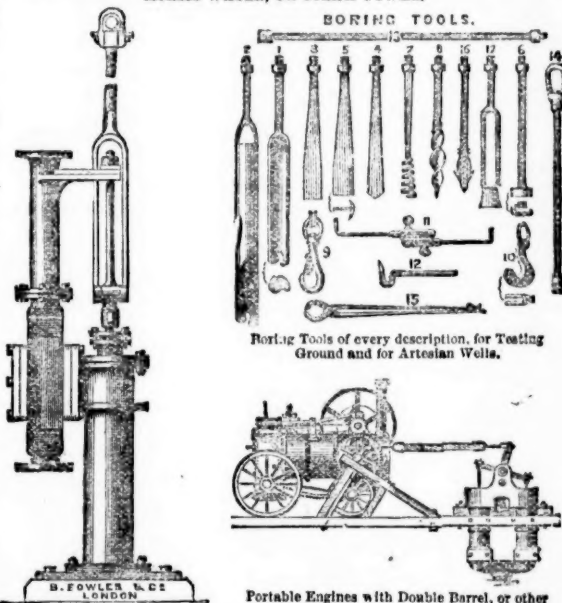
His Honour the Vice-Chancellor WOOD having found a VERDICT in FAVOUR of the PLAINTIFFS in the above Cause, establishing the VALIDITY of BLAKE'S PATENT, and made a DECREE for an INJUNCTION to RESTRAIN the DEFENDANTS, Messrs. THOMAS ARCHER and SON, of Dunston Engine-Works, near Gateshead-on-Tyne, from INFRINGING such PATENT, and ordering them to pay to the Plaintiffs the costs of the Suit.

ALL PERSONS are hereby CAUTIONED against MANUFACTURING, SELLING, or USING any STONE BREAKERS similar to BLAKE'S, which have not been manufactured by the Plaintiffs. Application will forthwith be made to the Court of Chancery for INJUNCTIONS AGAINST ALL PERSONS who may be found INFRINGING BLAKE'S PATENT after this notice.

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